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MEDICINAL & AROMATIC PLANTS ABSTRACTS

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Medicinal & Aromatic Plants Abstracts

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Medicinal & Aromatic Plants Abstracts

Agronomy

9202-0696 Anwar, M., Patra, D.D. , Mukhopadhyay, A.K., Singh, D.V. (Central Institute of Medicinal and Aromatic Plants, Lucknow 226016, UP, India) **Relationship of manganese with iron and zinc and their effect on dry matter and seed yield of opium poppy (Papaver somniferum) under two f rtility levels.** *Indian Journal of Agricultural Sciences*, v. 62(1): p. 80-82, 1992 (6 ref, Eng).

Increase in the dry matter and seed yield with the application of 7.5 ppm Mn and Fe or 5 ppm of Zn and a reduction in increasing the level of micronutrients were observed.

9202-0697 Bal Krishan, Hooda, M.S.(Department of Forestry, Haryana Agricultural University, Hissar 125 004, Haryana, India) **Suitab`e tree species growing in different zones of Haryana.** *Haryana Farming*, v. 20(3): p. 2-4, 1991 (Eng).

Tree species, including some medicinally important like *Terminalia arjuna, Melia azedarach, Cassia fistula, Bauhinia variegata, Ziziphus jujuba, Azadirachta indica, Emblica officinalis, Cassia siamea, Acacia catechu* etc. suitable for planting in different climatic zones of Haryana have been enumerated. Information on cultivation site, sowing season, age of normal planting stock (months), planting season, method of planting and uses is also provided. NSL, New Delhi.

9202-0698 Balashanmugam, P.V., Subramanian, K.S.(Agricultural Research Station, Bhavanisagar 638451, Tamil Nadu, India) **Effect of split application of potassium on turmeric.** *South Indian Horticulture*, v. 39(3): p. 139-142, 1991 (3 ref, Eng).

Application of potassium at 90 kg K2O/ha in four splits recorded the highest uptake in BSR 1 variety of *Curcuma longa*.

9202-0699 Baswana, K.S., Jalali, I., Thakral, K.K.(Haryana Agricultural University, Hissar, Haryana, India) **Effect of sowing dates, and fungicides on seed quality, yield and disease incidence of cumin.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 155-157, 199. (2 ref, Eng).

Cuminum cyminum crop sown on 4th January was found to be free from Alternaria blight during both the years (1983-84 and 1984-1985) and of better seed quality without any foliar sprays but the seed yield was lower. Fungicides Difolatan and Dithane M-45 effectively reduced the disease incidence only during 1984-85.

9202-0700 Behura, S., Sahoo, S., Pradhan, N.K., Dutta,P.K. (Regional Research Laboratory, Bhubaneswar 751013, Orissa, India) **Cymbopogon natural hybrid- Jamrosa, the aromatic grass suitable for chromite overburden plantation.** *Indian Perfumer*, v. 35(2): p. 90-92, 1991 (4 ref, Eng).

Performance of five aromatic *Cymbopogon* species viz., Palmarosa, Jamrosa, Citronella, *C.pendulus* and *C.flexuosus* was compared in pure chromite overburden soil of Kaliapani, Orissa. The findings on growth parameters, herb and oil yield of these species for six successive cuttings were recorded at Regional Research Laboratory, Bhubaneswar during 1987-1988. Considering the growth parameters, herb yield and economics of oil production, the natural hybrid- Jamrosa was found to be the suitable genotype for plantation in chromite overburden area.

9202-0701 Deans, S.G., Svoboda, K.P. , Bartlett, M.C.(Department of Biochemical Sciences, Scottish Agricultural College, Auchincruive AYR KA6 5HW, Scotland, UK) **Effect of microwave oven and warm-air drying on the microflora and volatile oil profile of culinary herbs.** *Journal of Essential Oil Research*, v. 3(5): p. 341-347 , 1991 (9 ref, Eng).

A number of culinary herb species *Allium schoenoprasum, Anethum graveolens, Anthriscus cerefolium, Artemisia dracunculus, Coriandrum sativum, Levisticum officinale, Mentha spicata, Origanum majorana, Petroselinum crispum, Salvia officinalis, Satureja hortensis* and *Thymus vulgaris* were dried by warm-air and microwave ovens.The microbiological quality of the raw and dried material was determined for total bacterial count, *Staphylococcus aureus, Bacillus cereus* and coliforms. The volatile oil content of seven plant species was determined by gas chromatography following drying at temperatures from 40-100 degree C, revealing that at temperatures greater than 60 degree C, most of the volatile constituents were lost. Exposure of herbs to microwaves was evaluated as a method of both drying and reducing the microbial load present on the plants. The microflora was reduced by two to three logarithmic cycles, but the effect on the volatile oil profile was profound. In addition to losses of oil constituents, novel peaks were detected on the GC trace.

9202-0702 Dikshit, S.N., Pathak, R.K.(Department of Horticulture, ND University of Agriculture and Technology, Faizabad 224229, UP, India) **Effect of sodicity and salinity on free and protein-bound amino acids in Indian gooseberry (Emblica officinalis).** *Indian Journal of Agricultural Sciences*, v. 62(1): p. 60-63, 1992 (9 ref, Eng).

Total free amino acids increased significantly with increase in the level of stress and reached maximum at exchangeable sodium percen- tage 46.50 percent and electrical conductivity of saturation extract 0.2 mmhos/cm. Protein bound amino acids showed a reverse trend with increase in the level of exchangeable sodium percentage and electrical conductivity of the soil.

9202-0703 Edison, S., Kallupurackal, J.A.(National Research Centre for Spices, Marikunnu, Calicut 673012, Kerala, India) **Increasing yield of spices by growing new varieties: a status report.** *Indian Cocoa,Arecanut and Spices Journal*, v. 14(4): p. 138-144, 1991 (Eng).

Cultivation details, varieties, percentage, duration of crop,, yield and special characters of black pepper, cardamom, ginger, turmeric, cumin, coriander, fennel and fenugreek have been discussed.

9202-0704 Farooqi, A.A., Devaiah, K.A. , Vasundhara, M., Raju, B., Dasharatha Rao, N.D.(Division of Horticulture, University of Agricultural Sciences, GKVK Campus, Bangalore 560065, Karnataka, India) **Effect of nutrients on growth, yield and essential oil content in Davana (Artemisia pallens Wall.).**. *Indian Perfumer*, v. 35(2): p. 63-68, 1991 (3 ref, Eng).

An experiment conducted under Bangalore conditions to study the effect of N, P and their interactions on the growth, yield and oil content of Davana (*Artemisia pallens*) revealed that application of nitrogen at 180 kg/ha was responsible for increased yield (16.32 t/ha) and oil content (21.67 kgs/ha) besides increased growth. However this was found to be on par with nitrogen applied at 120 kg/ha. Application of phosphorus did not have any appreciable effect on growth, yield and oil content.

9202-0705 Gasic, O., Lukic, V., Adamovic, D.(Institute of Chemistry, Faculty of Sciences, Institute of Field Crops and Vegetables, Faculty of Agriculture, University of Novi Sad 21000 Novi Sad, Yugoslavia) **The influence of sowing and harvest time on the essential oils of Chamomilla recutita (L.) Rausch.**. *Journal of Essential Oil Research*, v. 3(5): p. 295-302 , 1991 (17 ref, Eng).

The influence of sowing (autumn and spring) and harvest on the content and composition of the essential oil of seventeen chamomile cultivars was investigated. For most chamomile populations, the essential oil content was significantly higher if it was spring sown rather than autumn sown. The oil composition was also found to vary, depending upon whether the cultivar was spring or autumn sown or when it was harvested.

9202-0706 Giridharan, M.P., Balakrishnan, S.(College of Horticulture, Vellanikkara 680654, Trichur, Kerala, India) **Effect of gamma irradiation on yield and quality of ginger.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 100-103, 1991 (12 ref, Eng).

Irradiation treatments using 0.7, 1.0, 1.5 and 2.0 Krad gamma doses, produced inhibitory effects on production of rhizomes and consequently the yield of *Zingiber officinale*. The treatment did not significantly change the essential oil and oleoresin content of both green and dry ginger.

9202-0707 Graven, E.H., Webber, L., Benians, G., Venter, M., Gardner, J.B.(Agricultural and Rural Development Research Institute, University of Fort Hare, Alice, Ciskei, Republic of South Africa) **Effect of soil type and nutrient status on the yield and composition of tagetes oil Tagetes minuta L.**. *Journal of Essential Oil Research*, v. 3(5): p. 303-307 , 1991 (7 ref, Eng).

A glasshouse fertilizer trial (omission principle) was conducted to investigate the effect of the nutrient status of three problem Ciskei soils on the yield and quality of the essential oil of *T.minuta*. Acute inherent deficiencies of N and P (3 soils) and S (2 soils) were reflected in drastically reduced herbage and oil yields. N-deficiency also resulted in a dramatic increase in the dihydrotagetone content of the oil. The major oil components were not materially influenced by P and S deficiencies in the substrate. In two soils, a vesicular-arbuscular mycorrhiza developed on the minus P treatments partly alleviating the phosphorus deficiency. Results strongly suggest that inherent N, P and S deficiencies are responsible for variation in the yield and composition of *T.minuta* oil in Ciskei.

9202-0708 Haldankar, P.M., Salvi, M.J., Joshi, G.D., Patil, J.L. (Department of Horticulture, Konkan Krishi Vidyapeeth, Dapoli, Maharashtra, India) **Effect of season and shade provision on softwood grafting of kokam.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 158-159, 1991 (5 ref, Eng).

October month was found to be the best season for softwood grafting of *Garncinia indica* and the grafts were successfully maintained either in glass house or under open sun after grafting.

9202-0709 Ilavgovan, R., Subbiah, R. , Natarajan, S.(Agricultural College and Research Institute, Madurai 625104, TN, India) **Influence of spacing, nitrogen and phosphorus on sennoside content in senna (Cassia angustifolia Vahl.).** *South Indian Horticulture*, v. 39(2): p. 113-116, 1991 (3 ref, Eng).

Senna plants under closer spacing yielded lesser amount of sennoside due to less yield of leaves and pods per

plant. Sennoside yield per plot showed significant differences due to levels of spaces, nitrogen and phosphorus and interaction between spacing and nitrogen.

9202-0710 Jamuna, P., Rao, P.N., Reddy, P.V. , Rao, M.R.(Regional Agricultural Research Station, Lam, Guntur 522034, AP, India) **Phosphorus requirement of coriander in black clay soil (vertisol) of low available P2O5.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 112-113, 1991 (5 ref, Eng).

Phosphorus content in *Coriandrum sativum* increased progressively at flowering with the application of 40,60 and 80 kg P2O5/ha. The grain and bhusa yields increased with all the levels of P2O5 in the soil. The percentage phosphorus content in the plant at flowering stage was negatively correlated with percentage nitrogen.

9202-0711 Johri, A.K., Srivastava, L.J. , Singh, J.M., Rana, R.C. (Department of Forest Products and Utilization, Dr YS Parmar University of Horticulture and Forestry, Nauni (Solan) 173230, HP,India) **Effect of row spacings and nitrogen levels of flower and essential oil yield in German chamomile (Matricaria chamomilla L.).** *Indian Perfumer*, v. 35(2): p. 93-96, 1991 (12 ref, Eng).

A field experiment was conducted during 1989 and 1990 to investigate the effect of row spacings and nitrogen levels on flower and oil yields of *M.chamomilla*. All the twelve treatments consisted of three spacings (15x15, 20x20 and 30x30 cm) and four nitrogen levels (0,20,40 and 60 kg N/ha). Flower and oil yields have been found higher at 30x30 cm spacing and in addition to this, 60 kg N/ha applied in two equal splits (half at planting time and half after one month of planting) registered maximum flower yield (10.34 q/ha) and oil yield (8.14 L/ha).

9202-0712 Kan, S.(School of Pharmaceutical Sciences, Nagasaki University, 1-14, Bunkyo-machi, Nagasaki 852, Japan) **Cultivation and breeding of Geranium thunbergii(II). Effect of mulching cultivation on the yield and the tannin content 1.** *Shoyakugaku Zasshi*, v. 45(1): p. 6-11, 1991 (8 ref, Jap, Eng).

The effects of various colored mulches on the growth of weeds, and also on the growth, yield and tannin content of *Geranium thunbergii* were studied. The mulches used in this experiment were transport, double, black and red mulches. Control plants were cultivated without any mulch. The results showed that the use of a double mulch or a black prevented weeds from growing, but the use of a transport mulch encouraged their growth. The viability of *G.thunbergii* was higher when a double mulch was used. In the plants cultivated with a black mulch, the tannin content was higher, though the growth and yield were lower.

9202-0713 Kan, S.(School of Pharmaceutical Sciences, Nagasaki University, 1-14, Bunkyo-machi, Nagasaki 852, Japan) **Cultivation and breeding of Geranium thunbergii (III). Effect of temperature on the growth of Geranium thunbergii.** *Shoyakugaku Zasshi*, v. 45(1): p. 46-48, 1991 (6 ref, Jap, Eng).

The effect of temperature on the growth and the tannin content of *G.thunbergii* was studied. The plants were cultivated in three Biotron growth cabinets whose day time/night time temperatures were controlled as 35 degree C/30 degree C, 25 degree C/20 degree C, and 15 degree C/10 degree C. {day time was from 06:00-18:00 hr and night time from 18:00-06:00 hr}. The final viability was the lowest at the highest temperature (35 degree C/30 degree C) condition. The length of the stem tended to be shorter at higher temperature conditions. The dry weight of the aerial parts of the plants was lower when the plants were grown at higher temperatures, while the tannin content was higher in the plants grown at lower (15 degree C/10, degree C) temperature. These results showed that this plant grew better and contained more tannin when grown at the 15 degree C/10 degree C temperature condition.

9202-0714 Kan, S.(School of Pharmaceutical Sciences, Nagasaki University, 1-14, Bunkyo-machi, Nagasaki 852, Japan) **Cultivation and breeding of Geranium thunbergii (IV) Effects of mineral elementhe on the growth and tannin content.** *Shoyakugaku Zasshi*, v. 45(1): p. 49-51, 1991 (7 ref, Eng).

The effects of mineral elements (N, P, K, Ca, Mg and S) on the growth and tannin content of *G.thunbergii* were examined by hydroponics using a Hoagland and Arnon solution. Following results were obtained; 1) more plants died when the soil Ca was deficient; the final viability fell to 33 percent. 2) branching tended to be less when N or Ca was deficient. 3) the stems tended to be shorter when mineral elements other than S were deficient. 4) The dry weight of aerial parts was generally less when mineral elements other than S were deficient. The decrease was more pronounced when either N or Ca was deficient. 5) Their tannin content was lower when Ca, N or Mg was deficient. These results showed that a deficiency in Ca, N, P or K significantly reduced the growth of *G.thunbergii* while that in Mg, N or Ca decreased the tannin content. It is suggested that more attention should be paid to the mineral elements in the soil used for the cultivation of *G.thunbergii* as the Mg, N and Ca deficiencies especially degrade the quality or the crude drugs.

9202-0715 Kan, S.(School of Pharmaceutical Sciences, Nagasaki University, 1-14, Bunkyo-machi, Nagasaki 852, Japan) **Cultivation and breeding of Geranium thunbergii (1). Effect of planting density and light intensity on**

yield and tannin content. *Shoyakugaku Zasshi*, v. 45(1): p. 1-5, 1991 (6 ref, Jap, Eng).

In the planting density experiment, the plants were cultivated at the density of 50, 100 or 150 plants per 10 m2 in the field. As regards the light intensity, it was controlled with shading nets, having shading percentages of 22, 45, 60 and 80 percent. The plants were cultivated under one of those covering nets and the control plants were cultivated without any net. The results showed that the weight of the individual air-dried aerial parts were found to be higher when the parts were cultivated at the rate of 100 or 150 per 10m2 than when they were at 50/10m2, and tannin content in them was the highest on 100 plants per 10 m2. Light intensity also had effects on the air-dry weight of the aerial parts and their tannin content. The air dried aerial parts weight was heavier when no shading or a 22 percent shading was used, and the tannin content was the highest when a 22 percent shading was used. The results suggest that *G.thunbergii* of good crude drug quality at a good yield can be produced by cultivating it at 100 plants per 10 m2 and under a 20 percent shading.

9202-0716 Kordana, S., Zalecki, R.(Instytut Roslin Przetworow Zielarskich, ul. Libelta 27, 61-707 Poznan, Polska) **The effect of liming level and forms of nitrogenous fertilizers on the crop of the mirage variety of Origanum majorana L..** *Herba Polonica*, v. 35(4): p. 179-185, 1989 (Recd. 1991, 16 ref, Pol, Eng).

The results of liming and forms of nitrogenous fertilizers on *O.majorana* have been presented. The maximum yield was obtained by applying lime to sour soils and fertilization of plants with nitro-chalk or Norwegian saltpetre. Lower yield was obtained with a single calcium dose and fertilization with ammonium nitrate and urea. Ammonium sulfate applied individually or in combination with soil liming showed the lowest effect on the crop.

9202-0717 Korla, B.N., Dohroo, N.P.(Department of Vegetable Crops, University of Horticulture and Forestry, Solan, HP, India) **Production technology in Turmeric a review.** *Agricultural Reviews*, v. 12(2): p. 66-74, 1991 (84 ref, Eng).

The botany, origin, growing season, rhizome yield,planting season, mulching, cropping system, irrigation, havresting, curing, curcumin content, diseases and insect pests of turmetic (*Curcuma* spp.) has been discussed. Besides, high yielding varieties with high curcumin contents, the suitable cultural practices plays an important role in its cultivation. These vary with agroclimatic and soil conditions and as such, the recommendation given by the researchers for local conditions must be adhered. NSL, New Delhi.

9202-0718 Maheshwari, S.K., Sharma, O.P. , Gangrade, S.K., Trivedi, K.C.(College of Agriculture, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Indore 452001, MP, India) **Irrigation schedule for sarpagandha (Rauvolfia serpentina) in a shallow black soil.** *Indian Journal of Agricultural Sciences*, v. 61(3): p.169-171, 1991 (6 ref, Eng).

An experiment was conducted during 1985-1986 and 1986-1987 to schedule the irrigation for sarpagandha (*R.serpentina* on a shallow black soil (Kamliakheri series, Vertic Ustochrepts). The irrigation were given on the basis of cumulative pan evaporation (50 mm) at irrigation water: cumulative pan-evaporation ratio of O,0.15, 0.30, 0.45, 0.60, 0.75 and 0.90. The dry root and alkaloid yields and water-use efficiency in the field increased up to an IW: CPE ratio of 0.75. The alkaloid content was not affected by irrigation schedules. The maximum net returns/ha were obtained at an IW: CPE ratio of 0.75.

9202-0719 Maheshwari, S.K., Gangrade, S.K. , Trivedi, K.C.(JNKVV, College of Agriculture, Indore 452001, Madhya Pradesh, India) **Comparative responses of palmarosa to Azotobactor and nitrogen under rainfed and irrigated swards.** *Indian Perfumer*, v. 35(2): p. 108-111, 1991 (2 ref, Eng).

Field experiments on palmarosa *Cymbopogon martini* var. *motia* conducted in 1985-86 to 1987-88 (rainfed) and 1986-87 to 1988-89 (partially irrigated) at the JNKVV, College of Agriculture, Indore, revealed that in rainfed condition average increase in herb yield of 23 percent and 22 percent was marked on applying Azotobactor and 80 kg N/ha, comparing to control, respectively. In the same regime as compared to control, the oil yield showed mean enhancement of 46 percent and 52 percent on using Azotobactor and 80 kg N/ha, respectively. No significant variation was seen in the geraniol content due to treatments. In irrigated sward, on comparison to control, Azotobactor was found to enhance the herbage biomass by 16 percent, whereas Azotobactor alongwith 80 kg N/ha resulted in 29 percent increment. However, 21 percent and 27 percent increased mean oil yield was noticed by Azotobactor and 80 kg N/ha as compared to control, respectively. The economics of essential oil production emphasized the safe of Azotobactor in place of 40 kg N/ha. Use of Azotobactor entirely or 80 kg N/ha singly proved to be most optimum and economic media for higher monetary returns under two sets of condition.

9202-0720 McNeil, D.L.(Western Australia Department of Agriculture, Kununurra, Western Australia 6743) **Growth of Plantago ovata Forsk. in northern Western Australia in response to sowing date, sowing rate and method of**

sowing. *Tropical Agriculture (Trinidad)*, v. 68(3): p. 289-295 , 1991 (21, Eng).

P.ovata was successfully grown in the Ord River Irrigation Area. Optimal sowing rates and layouts found in these trials agreed with Indian experience, suggesting that broadcasting of seed at 8-12 kg/ha was optimal. The optimum time of sowing ranged from 7 May in 1985 to 1 June 1986. Harvest index was dramatically affected by seasonal conditions, with a mean of 19.5 percent in 1985 and 13.2 percent in 1986. This harvest index reduction in 1986 was due to higher vegetative yields as well as lower seed yields. In 1985 the seed yield for crops sown on the optimal date was 1.36 t/ha.

9202-0721 Mohanty, D.C., Sarma, Y.N., Panda, B.S.(High Altitude Research Station, Orissa University of Agriculture and Technology, Pottangi 764039, Koraput, Orissa, India) **Influence of mulch materials and cover crops on the yield of turmeric crop under rainfed condition in Orissa.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 97-99, 1991 (4 ref, Eng).

Significant earliness in sprouting of *Curcuma longa* and less number of weeds in the mulched treatments with leaves and straw applied just after plantings. Effect of mulch and cover-crops on various yield contributing traits of turmeric indicated significant increase in number of shoots per plant, leaves per shoot, plant height, length and breadth of fully opened last leaf.

9202-0722 Munshi, A.M., Baba, G.H.(SK University of Agricultural Sciences & Technology, KD Research Station, Old Air Port, Srinagar 180008, JK, Kashmir) **Effect of plant density and depth of planting on the floral yield and corm multiplication in saffron under rainfed conditions of Kashmir.** *Indian Cocoa,Arecanut and Spices Journal*, v. 14(4): p. 160-162, 1991 (4 ref, Eng).

In *Crocus sativus*, 5 cm corm to corm spacing enhanced the number of flowers/m2 significantly over 10cm-15cm corm spacing and were at par with regard to depth of planting. Morphological and yield attributing traits were not significantly affected by different plant densities. However, fresh weight of stigma + style and dry weight of stigma+style had significant effect with 10cm deep planting in 5x15 cm and 5x20cm spacing.

9202-0723 Murtagh, J.G., Curtis, A.(NSW Agriculture and Fisheries, Wollongbar NSW 2477, Australia) **Post-harvest retention of oil in tea tree foliage.** *Journal of Essential Oil Research*, v. 3(3): p. 179-184 , 1991 (12 ref, Eng).

Experiments demonstrated that oil from tea tree *Melaleuca alternifolia* foliage is retained without loss or change in chemical composition upto 13 days after harvesting. This retention was exhibited under a range of exposure treatments which provided different rates of drying and opportunities for respiration or volatilization losses.

9202-0724 Nandi, R.P., Chatterjee, S.K.(Research Laboratory, Mungpoo 734313, Darjeeling, West Bengal, India) **Improved cultivation and distillation methods followed by citronella plantations of Darjeeling hills.** *Indian Perfumer*, v. 35(2): p. 80-85, 1991 (3 ref, Eng).

An account of the agrotechnology, oil yield and oil composition of commercially grown *Cymbopogon winterianus* in Darjeeling hills has been presented. The plant showed maximum oil content in hilly regions as compared to plantations in North Bengal plants; whereas oil yield and aldehyde contents were always higher in plants. The study has established specific requirements of agronomical inputs for success in cultivation of citronella. Of the growth parameters studied the rates of leaf and tiller formation revealed a close agreement with the rates of essential oil biogenesis whereas the relationship between extension growth and essential oil synthesis could not be established in this plant species. Distillation of essential oil in citronella could be improved by subjecting the grass to different time-intervals of storage.

9202-0725 Narayana Gowda, J.V., Jacob, S. , Huddar, A.G.(Division of Horticulture, University of Agriculture, GKVK, Bangalore 560065, Karnataka, India) **Effect of N P and K on growth and flowering of tuberose (Polianthes tuberosa Linn). Cv. Double.** *Indian Perfumer*, v. 35(2): p. 100-101, 1991 (2 ref, Eng).

Application of nitrogen to tuberose cv. Double, significantly increased height. Nitrogen and potassium significantly influenced the days taken for flower spike emergence. Phosphorus and potassium were effective in increasing flower spike and number of flowers. Application of 200, 75 and 125 Kg of N, P and K may be recommended for higher yield and quality flowers in tuberose cv Double.

9202-0726 Nedkov, N.K., Georgiev, G.V.(Scientific Research Institute of Roses, Essential Oil & Medicinal Plants, Kazanlak, Bulgaria) **A study of different irrigation practices used for Mentha piperita in Bulgaria.** *Journal of Essential Oil Research*, v. 3(6): p. 435-440 , 1991 (Eng).

In Bulgaria, peppermint *M.piperita* must be grown under irrigation if high yields of oil and leaves are to be realized. To determine the most efficient and beneficial irrigation system, the effect of sprinkler irrigation, surface drip irrigation, subsurface irrigation at 35 cm depth and subsurface irrigation with microporous hose at 15 cm depth on peppermint culture over a four-year period was evaluated. It was found that the highest yield of oil and plant

material was obtained when drip surface irrigation or sub-surface irrigation using microporous hose was used. Both of these irrigation practices were found to conserve water to a greater extent than the other practices examined.

9202-0727 Pal, D., Gupta, S.K.(Department of Botany, DAV College, Muzaffarnagar, UP, India) **Effect of lime treatment on mineral contents of Nerium oleander Linn..** *Advances in Plant Sciences*, v. 4(2): p. 264-267, 1991 (9 ref, Eng).

Lime dressing adversely affected the phosphorus and potassium contents in above ground and underground parts of *N.oleander*. Nitrogen content increased upto 50 gm per pot lime treatment at pre flowering and during flowering stages. Over liming (above 100 gm per pot) deterimentally affected the universal contents at all the growth stages. NSL, New Delhi.

9202-0728 Prakasa Rao, E.V.S. , Munnu Singh(Central Institute of Medicinal and Aromatic Plants Regional Centre, Bangalore 560037, Karnataka, India) **Long-term studies on yield and quality of java citronella (Cymbopogon winterianus Jowitt) in relation to nitrogen application.** *Journal of Essential Oil Research*, v. 3(6): p. 419-424 , 1991 (11 ref, Eng).

Field studies have been conduced over a five-year period to examine the effect of nitrogen application on the yield and quality of essential oil in java citronella *C.winterianus* in a semi-arid tropical region in South India. The results showed that the yield per unit area of citronella fresh plant (herbage) differed significantly between years; the yields increased upto the second year after which time they started to decline. During the first two years, nitrogen applications upto 300 kg N/ha/year increased the oil yield significantly; however, during the third and fourth years the response to N was quadratic. This shows that it is possible to reduce the application of N after two years, while still maintaining the same content and quality of essential oil. The oil content and chemical composition of oil did not change as the age of the crop increased.

9202-0729 Rao, D.V.R., Reddy, K.B., Naidu, L.N., Suryanarayana, V. (Department of Horticulture, SV Agricultural College, Tirupati 517502, AP, India) **Effect of bulb size and depth of planting on growth and flowering of tuberose (Polianthes tuberosa L.) Cv. Single.** *South Indian Horticulture*, v. 39(3): p. 143-145, 1991 (5 ref, Eng).

Large sized bulbs significantly increased the yield of bulbs and flowers. Though shallow planting resulted in higher yield of flowers, the effects of planting depth on other growth and flowering characters were not significant. Shallow planting of large sized bulbs has been advocated for higher yields of flowers and bulbs.

9202-0730 Rao, M.R.N.(Department of Agriculture, Andaman & Nicobar Islands, Port Blair, India) **Prospects of nutmeg , clove and cinnamon cultivation in Andaman & Nicobar Islands.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 118-120, 1991 (Eng).

Wide scope of cultivation of *Myristica fragrans, Syzygium aromaticum* and *Cinnamomum zeylanicum* in Islands under the multitier cropping system for the second income to farmers through intensive development in the hilly and undulating lands has been reported.

9202-0731 Singh, K., Ram, P.(Central Institute of Medicinal & Aromatic Plants, Regional Centre, Pantnagar, Nainital 263 149, UP, India) **Production potential in intercropping of citronella Java with cowpea and mint species.** *Annals of Agricultural Research*, v. 12(2): p. 128-133 , 1991 (4 ref, Eng).

Field study conducted for two seasons to find out most suitable intercrop with citronella java *Cymbopogon winterianus* indicated that Japanese mint *Mentha arvensis* and spear mint (*M.spicata*) as intercrops did not affect significantly the herb and oil yield of citronella and gave highest monetary advantage of Rs 7442 and 6902/ha respectively over sole crop of citronella. Intercropping of cowpea gave negative return of Rs 891/ha. All the intercropped treatments had LER (land equivalent ratio) over and above unity. The system citronella java +*M.arvensis* had highest LER value. The possibility of intercropping Japanese mint and spearmint in citronella Java is indicated. NSL, New Delhi.

9202-0732 Singh, R.S., Bordoloi, D.N.(Medicinal and Economic Plants Division, Regional Research Laboratory, Jorhat 785 006, Assam, India) **Changes in the linalool and methyl cinnamate amounts in a methylcinnamate-rich clone of Ocimum basilicum at different growth stages.** *Journal of Essential Oil Research*, v. 3(6): p. 475-476 , 1991 (5 ref, Eng).

The highest essential oil content (0.93 percent) and methyl cinnamate content (61.2 percent) were found in *O.basilicum* var.*purpurascens* plants harvested at full flower and early flowering stages of growth respectively.

9202-0733 Singh, V.B., Kar, P.L.(School of Agriculture Sciences and Rural Development, North Eastern Hill University, Medziphema 797106, Nagaland, India) **Effect of planting materials on the productivity of turmeric variety Lakadong.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 153-154, 1991 (7 ref, Eng).

The highest yield of 29.93 t/ha and cured turmeric per plant (116.0g) were obtained when whole rhizomes were used as plant materials, followed by half rhizome and fingers in their descending order of weight respectively. However, plants raised from half rhizomes showed remarkable tolerance against leaf spot disease.

9202-0734 Srivastava, H.C.(Aromatic Crops Breeding Laboratory, Indian Institute of Horticultural Research, Bangalore 560089, Karnataka, India) **Research on essential oil yielding jasmine by IIHR.** *Indian Perfumer*, v. 35(2): p. 77-79, 1991 (23 ref, Eng).

The Indian Institute of Horticultural Research, Bangalore has taken up genetic improvement and agrotechniques for production of essential oil yielding jasmines (*Jasminum grandiflorum*). A brief summary of the work has been presented.

9202-0735 Subbi Reddy, G., Krishnan, R. , Chandravadana, M.V. (Indian Institute of Horticultural Research, Hessaraghatta, Bangalore 560089, Karnataka, India) **Planting density and arrangement for higher berry and solasodine yields in Solanum viarum; rectangular vs square spacing.** *Tropical Agriculture (Trinidad)*, v. 68(3): p. 279-283 , 1991 (18 ref, Eng).

Using nearly spine-free diploid and induced autotetraploid lines in two trials, berry and solasodine yields of *S.viarum* were evaluated over a wide range of planting densities (6900-49 000 plants per hectare) under square and rectangular spacings. Under square spacing, a linear relationship existed between planting density (upto 49 000 plants per hectare) and berry yield. Solasodine content was not affected by planting density, but within the range 6900-28 000 plants her hectare, rectangular spacing proved superior to square spacing in both berry and solasodine yields. Available evidence supported the adoption of wider east-west spacing for better light interception and realization of higher berry and solasodine yields. Higher planting densities (upto 49 000 plants per hectare) and square spacing is suggested for crop harvested once only at 180 days.

9202-0736 Vitkare, D.G., Phasate, S.N., Zade, K.B., Paulkar, K.S. (Punjabrao Krishi Vidyapeeth, Akola, Maharashtra, India) **Effect of nitrogen and phosphorus fertilization on the oil content and oil quality of lemongrass (Cymbopogon flexuosus).** *PKV Research Journal*, v. 14(1): p. 64-66, 1990 (4 ref, Eng).

The average oil content in foliage from total four cuttings was significantly affected by nitrogen fertilization. Each level of nitrogen was found to be significantly superior to the preceding level, except N40 which was found at par with N30. Increase in oil content of foliage from first cutting due to N2 addition was not found to be significant. In the 3rd and 4th cutting it was significantly increased by N2 fertilization. Phosphorus did not show any significant effect on average content of oil. Phosphorus increased the oil content in the foliage obtained from 3rd cutting. NSL, New Delhi.

Botany (General & Systematic)

9202-0737 Basalah, M.O.(Botany and Microbiology Department, College of Science, King Saud University, P.O. Box 2455, Riyadh 11451, Saudi Arabia) **Effect of salinity on seed germination and growth of squash (Cucurbita pepo L.) seedlings.** *Arab Gulf Journal of Scientific Research*, v. 9(2): p. 87-97, 1991 (21 ref, Eng).

Effects of six salinity levels on seed germination, length, fresh and dry weights, carbohydrate contents and alpha-amylase activity of squash seedlings were studied. Salinity progressively decreased the percentage of germination. The length, and the fresh and dry weights of root and shoot increased as the salinity level increased upto 8 m mhos/cm EC, indicating that squash can tolerate quite a high level of salinity at seedling stage. The soluble and insoluble carbohydrate contents and alpha-amylase activity were also affected by salinity. NSL, New Delhi.

9202-0738 Hooda, J.S., Sharma, G.D., Chnabra, A.K., Rathee, S.S. (Medicinal & Aromatic Plants Section, Department of Plant Breeding, HAU, Hissar, Haryana, India) **Status of medicinal plants and their future in Haryana.** *Haryana Farming*, v. 20(8): p. 13-14, 1991 (Eng).

On the basis of climate and ecology of Haryana, it has been divided into three zones, i.e. Zone I dry and hottest, Zone II semiarid and Zone III dry semihumid. In Zone I xerophytic plant like *Withania somenifera, Datura metel, Acacia senegal, Glycyrrhiza* etc are found. In Zone II deciduous plants like *Plantago, Cannabis sativa, Ocimum sanctum, Ricinus communis* are found. In Zone III thick vegetations of plants like *Cedrus deodara, Zingiber officinale, Caesalpinia crista* are found: Besides these numerous plants found in these zones are enumerated. Article also discusses the future potentials and strategies for the selection and cultivation of medicinal plants in Haryana. NSL, New Delhi.

9202-0739 Kanai, H.(Department of Botany, National Science Museum, Tokyo, 3-23-1, Hyakunin-cho, Shinuku-ku, Tokyo, 169, Japan) **Distribution of popular plants in the Miyagi Prefecture, north Japan.** *Journal of Japanese Botany*, v. 66(2): p.83-109, 1991 (5 ref, Jap, Eng).

Distribution maps of 31 popular plants including some medicinal plants in the Miyagi Prefecture, north

Japan, were prepared based on informations from local botanists and on author's field observations. *Justicia procumbens* was not detected in this area. *Mallotus japonicus*, *Indigofera pseudotinctoria* and *Trachelospermum asiaticum* showed coastal distribution in northern half of the prefecture as they are close to their northernmost distribution. Rate of occurrence in the northern part of the prefecture is less than that in the southern part for all the target plants suggesting the occurrence of a line of discontinuity in the amount of plant distribution.

9202-0740 Kulkarni, D.K., Kumbhojkar, M.S. , Phatak, M.S. (Department of Botany, MACS Research Institute, Law College Road, Pune 411 004, Maharashtra, India) **Fasciated inflorescence axis of Cassia fistula L..** *Biovigyanam*, v. 17(1): p. 51-54, 1991 (3 ref, Eng).

Three specimens of inflorescence collected from a single tree of *C.fitula* were examined. In all the cases inflorescence axis showed anomalies with respect to length of axis, starting point of fasciation, maximum width of fasciated pertion, legth of flowering axis, intitiation of branching and other features. The basal cylindrical axis transforms into a broad, flat and fascicled portions. NSL, New Delhi.

9202-0741 Lavania, S.(Botany Department, Lucknow University, Lucknow 226007, UP, India) **Trichome morphology in Indian Solanum.** *Journal of Indian Botanical Society*, v. 69(1&2): p. 143-148, 1990 (15 ref, Eng).

Structure of epidermal surface trichomes occurring along the entire plant body of twenty six Indian species of the genus *Solanum* has been reported. Variations in their organographic distribution, in frequency and topography have also been reported. Some of the trichome types were found to be species specific and has been suggested to be used as a subsidiary taxonomic parameter.

9202-0742 Mansfield, S.G., Briarty, L.G.(Anatomy and Human Biology Group, Biomedical Sciences Division, King's College, London Strand, London WC2R 2LS, England) **Early embryogenesis in Arabidopsis thaliana. II. The developing embryo.** *Canadian Journal of Botany*, v. 69(3): p. 461-476 , 1991 (68 ref, Eng, Ger).

Embryo differentiation in *A.thaliana* follows the classical *Capsella* variation of the Onagrad type, characterized by the longitudinal division of the terminal cell of a transversely divided embry. Details of post fertilization events in ovule, including anatomical and ultrastructural aspects of embryo differentiation, relating development to the previously defined time scale after flowering have been described.

9202-0743 Mansfield, S.G., Briarty, L.G. , Erni, S.(Human Biology Group, Anatomy and Biomedical Sciences Division, King's College, London, Strand London, WC2R 2LS, England) **Early embryogenesis in Arabidopsis thaliana. I. The mature embryo sac.** *Canadian Journal of Botany*, v. 69(3): p. 447-460 , 1991 (66 ref, Eng, Ger).

A.thaliana has an anatropous bitegmic ovule, and a monosporic eight nucleate, seven celled curved megagametophyte of *Polygonum* type. The central cell lies between the egg apparatus and the antipodal cells, the former consisting of two identical synergid cells and a single highly vacuolate egg cell.

9202-0744 Marsolais, A.A., Wilson, D.P.M. , Tsujita, M.J.*, Senaratna, T.(Department of Horticultural Science, University of Guelph, Guelph, Omt. Canada NIG 2W1) **Somatic embryogenesis and artificial seed production in Zonal (Pelargonium x hortorum) and Regal (Pelargonium x domesticum) geranium.** *Canadian Journal of Botany*, v. 69(6): p. 1188-1193 , 1991 (24 ref, Eng, Spa).

Somatic embryos have been produced from petioles and hypocotyls of Zonal geranium and from petioles of Regal geranium. Somatic embryos of both species have been desiccated and subsequently germinated. Some important factors that influence the rate of somatic embryo production in geranium are discussed. They include culture medium factors such as auxin and auxin dosage, carbohydrates, amino acids, pH, and basal medium composition. The donor plant genotype also appeared to have an effect on somatic embryogenesis and survival after desiccation.

9202-0745 Ohashi, H.(Biological Institute, Faculty of Science, Tohoku University, Sendai, 980 Japan) **Taxonomic studies in Desmodium heterocarpon (L.) DC. (Leguminosae).** *Journal of Japanese Botany*, v. 66(1): p. 14-25, 1991 (10 ref, Eng).

Seven items of taxonomic and nomenclatural problems in *D.heterocarpon* are studied and the following conclusions are obtained. 1)*D.toppinii* is identical with *D.heterocarpon* var. heterocarpon. 2)*D.heterocarpon subsp.angustifolium* is a new subspecific name for *D.reticulatum*. 3)*D.polycarpum* var. rigidum is a synonym of *D.heterocarpon* subsp. angustifolium. 4)*D.heterocarpon* subsp.*angustifolium f. pilosum* is a distinct form. 5)*D.heterocarpon* var.*heterocarpon f. albiflorum* is a white flowered form. 6)*D.heterocarpon* subsp.*ovalifolium* is newly recognized at the subspecific rank. A key to all the infraspecific taxa of *d.heterocarpon* is provided.

9202-0746 Pal, D., Gupta, S.K.(Botany Department, D A V College, Muzaffarnagar 251 001, UP, India) **Effect of**

moisture, temperature and radiation stress on therapeutic yield and biomass production in Nerium oleander and Urginea indica. *Advances in Plant Sciences*, v. 4(1): p. 54-60, 1991 (21 ref, Eng).

The present study reveals the effect of moisture, temperature and radiation stress on the therapeutic yield and biomass production in *U.indica* and *N.oleander*. The therapeutic yield of the plants was adversly affected by high temperature and low light intensity. Adverse effects of high noisture and temperature stresses were also noted on biomass production in both the plants. No correlation could lbe established between the harvest index and environmental stresses.

9202-0747 Pratibha Devi(Department of Botany, Osmania University, College for Women, Hyderabad, AP, India) **Growth estimates of sewage irrigated coriander and fenugreek.** *Advances in Plant Sciences*, v. 4(2): p. 394-396, 1991 (9 ref, Eng).

A comparative study was conducted by sowing the seeds of *Coriandrum sativum* and *Trigonella foenum-graecum* in a sewage irrigated field. The result shows that sewage water can substitute as a very cheap fertiliser and showed an increased growth and higher yield. NSL, New Delhi.

9202-0748 Purohit, S.D., Ramawat, K.G., Arya, H.C.(Department of Botany, Sukhadia University, Udaipur 313001, Rajasthan, India) **IAA-Oxidase, peroxidase, polyphenol-oxidase and phenolics in Ipomoea pentaphylla gall tissues.** *Oikoassay*, v. 7(1&2): p. 29-32, 1990 (18 ref, Eng).

Inhibition of IAA-Oxidase activity was recorded in young and old stem gall tissues. The activity was suppressed in leaf gall tissues as compared to normal. Significantly higher peroxidase and polyphenol-oxidase activity was registered in all the gall tissues than comparable normal tissues. Increased level of total and 0-dihydroxyphenols was exhibited by all categories of gall tissues. The total increase in phenolics was mainly due to increased 0-dihydroxyphenols. Polyphenol-oxidase converted monophenols into 0-dihydroxy phenols. Increased 0-dihydroxyphenols inhibited IAA-oxidase activity presumably resulting in hyperauxiny. Higher auxin levels induced plant cells to grow abnormal. NSL, New Delhi.

9202-0749 Singh, J., Gupta, K., Dhindsa, K.S.(Department of Chemistry and Biochemistry, Haryana Agricultural University, Hissar 125 004, Haryana, India) **Proximate principles of developing fenugreek.** *Annals of Biology*, v. 7(1): p. 69-73, 1991 (10 ref, Eng).

Proximate principles (like, proteins, minerals, carbohydrates and moisture) of your fenugreek (*Trigonella foenum graecum*) cultivars viz., Kasuri, Pusa Early Bunch, HM57, and HM46 at various stages of leaves seeds and pod walls development were determined and results are reported. NSL, New Delhi.

9202-0750 Subbiah, V.R., Dayanandan, P.(Department of Botany, Madras Christian College, Tambaram, Madras 600059, TN, India) **Growth kinetics, vascular differentiation and functions of aerial roots of Tinospora cordifolia.** *Journal of Indian Botanical Society*, v. 69(3&4): p. 305-309, 1990 (14 ref, Eng).

Aerial roots of *T.cordifolia* showed both gravitropic and phototropic responses. Maximum elemental rate of elongation was found to occur 5-10 mm behind the tip and the zone of elongation was 20 cm long. Vascular differentiation was equally extended. The wall of phloem showed distinct transverse bands of nacreous thickening.

9202-0751 Surender Kumar, P., Sadique, J.(Department of Siddha Medicine, Faculty of Sciences, Tamil Nadu University, Thanjavur 613 001, TN, India) **Medicinal flora of Thanjavur district.** *Bio-Science Research Bulletin*, v. 4(1-2): p. 21-23 , 1988 (Eng).

The systemic study of Thanjavur district enumerates 101 species of medicinal plants representing 92 genera (78 dicots+14 monocots) belonging of 46 families. NSL, New Delhi.

9202-0752 Terabayashi, S., Okada, M.(Tsumura Laboratory, 3586 Yoshiwara, Ami-machi, Inashiki-gun, Ibaraki, 300-11, Japan) **Branch anatomy in Magnolia subgenus Yulania.** *Journal of Japanese Botany*, v. 66(2): p. 76-82, 1991 (19 ref, Chi, Eng).

Anatomy of the branches bearing floral buds was examined for eight species of *Magnolia* subgenus *Yulania*, with special reference to morphology of epidermis and cork layers beneath the epidermis. The species with epidermis covered with thick cuticle have no cork layer beneath the epidermis *M.amoena Sect. Yulania, M.salicifolia, M.biondii Sect. Buergeria*), while in the species with thin cuticle, 1-4 cork layers are differentiated *M.heptapeta Sect. Yulania, M.tomentosa Sect. Buergeria, M.quinquepeta Sect. Tulipastrum*). In *M.praecocissima* related closely to *M.tomentosa*, cuticle is thick and cork layer is not or partially differentiated. *M.acuminata* (Sect. Tulipastrum) is unique in having more or less thick cuticle and 1-4 cork layers.

Breeding & Genetics

9202-0753 Castorena-Sanchez, J., Escobedo, R.M., Quiroz, A. (Centro de Investigacion Cientifica de Yucatan A.C. Apartado Postal 87, Mex-97310, Cordemex, Yucatan, Mexico, USA) **New cytotaxonomical determinants recognized in six taxa of Agave in the sections Rigidae and Sisalanae.** *Canadian Journal of Botany*, v. 69(6): p. 1257-1264 , 1991 (22 ref, Eng, Spa).

New cytotaxonomical determinants are presented for the following taxa of *Agave*: (1) section Rigidae: *Agave fourcroydes* (5x=150), first karyotype; *Agave angustifolia*, new count (6x=180), first karyotype; *Agave angustifolia* var. *marginata* (2x=60); and *Agave tequilana*, new count (2x=60), first karyotype; (II) section Sisalanae: *Agave sisalana* (5x=150), first karyotype; and III) intersectional hybrid: *Agave* hybrid 11 648 new count (2x=60), first karyotype. Chromosomes are classified and arm number, chromatin length, and variability are discussed. These results suggest (i) a speciation process via limited rearrangements and point mutations in the small chromosomes of the complement, within the euploidy level rather than karyotype diversification and (ii) a reconsideration to assign them to the 2C level of Stebbins karyotype classification.

9202-0754 Cho, Y.(Makino Herbarium, Faculty of Science, Tokyo Metropolitan University, 2-1-1, Fukazawa, Setagaya, Tokyo, 158 Japan) **Karyotype analysis of eight species and one variety of Carpesium (Compositae) in Japan.** *Journal of Japanese Botany*, v. 66(1): p. 26-34, 1991 (4 ref, Eng).

Chromosome number and karyotype of eight species viz., *C.abrotanoides, C.rosulatum, C.glossophyllum, C.macrocephalum, C.cernuum, C.triste, C.divaricatum* var. *matsuei* and *C.koidzumii* and one variety of Japanese *Carpesium* were studied. Chromosome number 2n=40 of *C.koidzummii* is reported for the first time. Karyotypes of the species studied fall into two groups on the basis of the number of the largest chromosomes.

9202-0755 Ene-Obong, E.E., Nwofia, G.E. , Okunji, C.O.(Department of Botany, University of Nigeria, Nsukka, Nigeria) **Depressive effects of alcoholic extracts of five molluscicidal plants on mitosis.** *Fitoterapia*, v. 62(4): p. 353-356, 1991 (13 ref, Eng).

Alcoholic extracts from root bark, stem bark, leaves, fruits and seeds of five molluscicidal plants *Alchornea cordifolia, Bridelia atroviridis, B.ferruginea, Chrysophyllum albidum* and *Dracaena arborea* were screened for their effects on mitotic division in *Allium cepa*. The effects produced were similar to those reported for cytotoxic plant extracts and included blockage of karyokinesis, spindle breakage and chromatoclassic effects on chromosome structure.

9202-0756 Krishnamoorthy, B., Rema, J. , Sasikumar, B.(National Research Centre for Spices, Calicut 673012, Kerala, India) **Progeny analysis in cinnamon.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 124-125, 1991 (1 ref, Eng).

A clear variation in the progeny performance of nine elite lines of *Cinnamomum verum* was noticed. Progenies of different lines exhibited different degree of variations for the characters studied.

9202-0757 Krishnamoorthy, B., Sasikumar, B. , Rema, J., Sayed, A.A.M., Abraham, J.(National Research Centre for Spices, Marikkunnu, Calicut 673012, Kerala, India) **Variability and association in nutmeg.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 121-122, 1991 (3 ref, Eng).

Maximum variance in *Myristica fragrans* for fruit number per tree followed by fruit weight was noticed. Fruit number per tree showed a significant negetive correlation with mace weight. Seed weight showed a very high positive significant association with mace weight.

9202-0758 Lavania, U.C.(Central Institute of Medicinal and Aromatic Plants, Lucknow 226 016, UP, India) **Evaluation of an Essential oil rich autotetraploid cultivar of vetiver (Vetiveria zizanioides (L.)Nash).** *Journal of Essential Oil Research*, v. 3(6): p. 455-457 , 1991 (7 ref, Eng).

A pilot scale performance trial conducted on artificial autotetraploids of vetiver, taken in conjunction with source diploids and two improved diploids revealed the superiority of the selected autotetraploids. The evolved autotertraploid strain, which has been named Sugandha, exhibited 60 percent improvement in oil productivity over its diploid control.

9202-0759 Mathur, V.L., Sharma, G.S.(Department of Genetics and Plant Breeding, Rajasthan Agricultural University, Udaipur 313001, Rajasthan, India) **Mutageninc efficiency of EMS and gamma-rays in fenugreek (Trigonella foenum graecum L.).** *Annals of Arid Zone*, v. 30(3): p. 239-242, 1991 (4 ref, Eng).

Seeds of fenugreek variety UM-75 were treated with three doses each of EMS and gamma-rays. In M1 generation 40,60 and 80 kR of gamma-rays induced more cytomorphological damage than 0.4, 0.6 and 0.8 percent EMS. Normal appearing plants selected from each treatment were advanced to M2 generation. In M2, lowest concentration of EMS (0.4 percent) generated maximum genetic variability for most of the traits. The estimates of heritability and

genetic gain were also of higher order in this treatment. NSL, New Delhi.

9202-0760 Misra, R.K., Yadav, R.K.(Indira Gandhi Krishi Vishwa Vidyalaya Regional Agricultural Research Station, Sarkanda, Bilaspur 495001, MP, India) **Genetic studies in safflower (Carthamus tinctorious L.).** *Advances in Plant Sciences*, v. 4(2): p. 319-323, 1991 (5 ref, Eng).

Genetic parameters of variability were calculated for yield and its components in 100 genotypes of safflower. Heritability estimates were high for all the characters. High heritability coupled with high genetic advances expressed as percentage of mean were observed for seed yield/plant, number of capsules/plant, number of seeds in main capsules, number of primary branches and 100 seed weight. Association analysis revealed that seed yield/plants had significant positive association with days to maturity, number of capsules/plant, number of primary branches and number of seeds in main capsules. NSL, New Delhi.

9202-0761 Nandi, A.(Regional Research Station, Orissa University of Agriculture and Technology, Ghumsar Udayagiri 762100, Orissa, India) **Genetic variability in turmeric (Curcuma longa).** *Indian Journal of Agricultural Sciences*, v. 61(12): p. 941-942, 1991 (6 ref, Eng).

Significant differences among the genotypes for yield/plant, fingers/plant and weight of single finger were noticed. The phenotypic coefficient of variation and heritability was found to be maximum for yield/plant and lowest for the weight of single-mother rhizome.

9202-0762 Patel, D.R., Dalal, K.C.(Medicinal and Aromatic Plants' Scheme, Gujarat Agricultural University, Anand Campus, Anand 388110, Gujarat, India) **Gamma-ray induced variability in isabgul (Plantago ovata Forsk.).** *Gujarat Agricultural University Research Journal*, v. 16(1): p. 23-26, 1990 (2 ref, Eng).

Positive significant shifts in means were observed in M2 generation for length of spike and numbers of tillers/plant in *P.ovata* variety Gujarat Isabgul-1 irradiated with 10,15,20,40,80 and 100 kr gamma rays. Mutagenic treatments of gamma rays increased variability in M2 generations in the progenies of most of the doses for most of the characters.

9202-0763 Prabhakaran, P.V.(Kerala Agricultural University, Thrissur, Kerala, India) **Factor analysis in turmeric.** *Annals of Agricultural Research*, v. 12(2): p. 151-155 , 1991 (3 ref, Eng).

Biometric observations on seventeen yield contributing and morphological characters on tumeric (*curcuma* spp.) were analysed through the principle factor method of factor analysis and the major factors of genetic diversity identified. The system could satisfactorily be represented by just three components. The scores on the first two principle components were further utilized for the classification of the varieties into a smaller number of clusters based on genetic similarity. NSL, New Delhi.

9202-0764 Sheidai, M., Inamdar, A.C.(Department of Botany, Fergusson College, Pune 411 004, Maharashtra, India) **Variation in meiotic chromosomes in Asparagus L.**. *Biovigyanam*, v. 17(1): 45-47, 1991 (9 ref, Eng).

Meiotic variations were studied in the pollen mother cells ofeight species of *Asparagus*; *A.adsendense*, *A.virgatus*, *A.gonoclados*, *A.officinalis*, *A.racemosus* var. *javanica*, *A.densiflora* var. *sprengeri*, *A.laevissimus*,*A.racemosus* var. *subacerosa*, both cultivated and occurring wild in and around Pune, India. Of the eight species three species and one variety are diploid (2n=20), three species and one variety are tetraploid (2n=40) and *A.gonoclados* is tetraploid (2n=60). The occurrence of the same stage of meiotic prophase-I irrespective of the ploidy level indicates that ploidy is not a factor affecting this deviation in the course of meiosis. NSL, New Delhi.

9202-0765 Shore, J.S.(Department of Biology, York University, North York, Ontario, Canada M3J 1P3) **Chromosomal evidence for autotetraploidy in the Turnera ulmifolia complex (Turneraceae).** *Canadian Journal of Botany*, v. 69(6): p. 1302-1308 , 1991 (32 ref, Eng, Spa).

The hypothesis that tetraploids of two taxonomic varieties of the *T.ulmifolia* complex, var. *elegans* and *intermedia* have had autopolyploid origins, was tested. Chromosome counts within each variety show that two cytotypes occur with somatic numbers of 2n=10 and 2n=20. Tetraploids of both var. *intermedia* and var. *elegans* have pollen fertility approximately 13 percent less than that of diploids. Synthetic tetraploids produced by colchicine doubling exhibit pollen fertilities virtually identical to those of the natural tetraploids. While diploids exhibited only bivalent formation, tetraploids showed varying frequencies of univalents, bivalents, trivalents, and quadrivalents. The chromosome pairing model and a minor modification of the goodness-of-fit test for that model, were used to test the hypothesis of an autopolyploid origin. For four of the six populations studied meiotically, the data fit the model. The data indicate that the tetraploid cytotypes of *T.ulmifolia* var. *elegans* and *intermedia* have had autopolyploid origins.

9202-0766 Singh, B.M., Pareek, S.K. , Maheswari, M.L., Gupta, R. (National Bureau of Plant Genetic Resources, New Delhi 110012, India) **Variability in periwinkle**

(Catharanthus roseus). *Indian Journal of Agricultural Sciences*, v. 62(1): p. 47-50, 1992 (8 ref, Eng).

Variability studied in 27 germplasm lines of *C.roseus* showed variation in leaf and root yield from 1076.67 to 3079.93 and 124.37 to 578.67 kg/ha respectively. The leaves had total alkaloid contents 0.67-1.25 percent and the roots 1.37-2.60 percent. Positive correlation between root branches and root yield, as well as ajmalicine and serpentine contents and total root alkaloids was observed. The promising lines for cultivation in different soil-moisture regimes have been reported.

9202-0767 Singh, J.M., Kaith, D.S.(Dr YS Parmar University of Horticulture Forestry, Solan, HP, India) **Variability and correlation studies in some kala zira collections from Kinnaur (HP) for some zira yield contributing parameters.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 109-111, 1991 (9 ref, Eng).

Presence of wide range of heritable variation was noticed in *Carum bulbocastanum* collections for seed yield, bulb weight, number of branches per plant, number of tillers per plant and plant height as indicated by high heritability. Genetic gains were of low magnitude indicating presence of higher order interactions alongwith the additive genetic variation.

9202-0768 Singh, S.P., Rajeshwara Rao, B.R. , Singh, A.K. (Department of Genetics and Plant Breeding, Central Institute of Medicinal & Aromatic Plants, Lucknow 226 016, UP, India) **Divergence analysis in pyrethrum.** *Crop Improvement*, v. 18(1): p. 37-40, 1991 (7 ref, Eng).

Genotypic diversity was assessed among 37 genotypes of pyrethrum grown in three years, using distance and canonical analysis. Significant varietal variation was observed for most of the characters. The distance analysis revealed that flower yield, number of flowers per plant and pyrethrin content were grouped in eight clusters. The clustors VI, VII and VIII were unique having single variety each. The grouping done by D2 statistic was confirmed by canonical analysis synthesis of new gene pool has been suggested for the improvement of pyrethrum a natural (*Chrysanthemium cinerariefolium*). NSL, New Delhi.

9202-0769 Singh, T.P.(Department of Botany, University of Calcutta, Calcutta 700019, WB, India) **Karyomorphological studies in the populations of Ocimum kilimandscharicum Guerke.** *Journal of Indian Botanical Society*, v. 69(3&4): p. 431-434, 1990 (7 ref, Eng).

The populations of *O.kilimandscharicum* belonging to two different climatic zones (plains and hills) showed the same morphology and chromosome number (2n=76) but differed in their chormosome size. The species being an ancuploid showed high degrees of meiotic irregularities and multivalent formations.

Diseases & Pests

9202-0770 Fontenla, S., Havrylenko, M., Rosso, P.H.(Centro Regional Universitario Bariloche, Univ. Nacional del Comahue, C.C.1336 (CP 8400) S.C. de Bariloche.Rio Negro, Argentina) **Vesicular arbuscular mycorrhizae in Austrocedrus chilensis.** *Suelo Y Planta*, v. 1(2): p. 251-255, 1991 (14 ref, Spa, Eng).

For the first time vesicular-arbuscular mycorrhizae are described in the roots of *A.chilensis* growing in the Argentina natural forest. The roots, either belonging to healthy trees or affected by the characteristic disease of this tree, have the fungal structures typical of the endofites forming vesicular-arbuscular mycorrhizae. There were not structural differences between affected and healthy tress. The presence of ectomycorrhizae was not found in the tress studied.

9202-0771 Harish Chander, Kulkarni, S.G. , Berry, S.K.(CFTRI, Regional Centre, Gill Road, Ludhiana 141006, Punjab, India) **Ability of the red flour beetle, Tribolium castaneum to feed and breed in whole and ground spices.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 114-116, 1991 (14 ref, Eng).

Chillies were found to support the best growth of the larvae and breeding. In *Coriandrum sativum, Carum copticum, Cuminum cyminum, Foeniculum vulgare, Piper nigrum* and *Curcuma longa*the insects, could not survive.

9202-0772 Himmel, P.T.(Department of Plant Pathology, University of Arizona, Tucson, AZ 85721, USA) **Inoculation of Euphorbia lathyris with cotton strings infested with Macrophomina phaseolina, causal agent of charcoal rot disease.** *Canadian Journal of Botany*, v. 69(3): p. 682-685 , 1991 (21 ref, Eng, Ger).

Root infections caused by Macrophomina phaseolina were initiated under optimal conditions for the host *E.lathyris*. Its two-week-old seedlings were inoculated by tying roots with cotton strings infested with M.phaseolina. Ninety-three per cent of the inoculated roots developed infections after 2 weeks incubation in silica sand at 25 degree C. By using infested strings, differences in the incidence of lesion development were detected when infected roots were subjected to differing temperature regimes. After approximately 6 weeks, there was a significantly greater incidence of lesion development at 34 degree C than at 25 degree C, whereas there was no difference in the incidence of infection. Aerial symptoms indicative of charcoal rot were not observed during the course of these studies.

9202-0773 Kalra, A., Ravindra, N.S., Chandrashekhar, R.S. (Regional Centre, CIMAP, Bangalore 560037, Karnataka, India) **Influence of foliar application of fungicides on dieback disease caused by Pythium aphanidermatum and alkaloid yield of periwinkle (Catharanthus roseus).** *Indian Journal of Agricultural Sciences*, v. 61(12): p. 949-951, 1991 (8 ref, Eng).

Fungicide Captafol (Foltaf 80 WP) gave the best disease control (70 percent); whereas Carbendazim (Bavistin 50 WP) and benomyl (Benomyl 50 WP) were found to be ineffective in controlling die-back disease of *C.roseus*. None of the fungicides influenced the content of total leaf and root alkaloids, but due to disease control it was possible to obtain 125 percent more yield of root alkaloids and 114 percent of leaf alkaloids in the Captafol-sprayed plots than in the control plots.

9202-0774 Malebennur, N.S., Gangadharappa, P.M. , Hegde, H.G. (Agricultural Research Station (Pepper), Sirsi, Uttara Kannada, Karnataka, India) **Chemical control of foot-rot of black pepper caused by Phytophthora capsici (Phytophthora palmivora-MF-4).** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 148-149, 1991 (3 ref, Eng).

Application of fungicide Metalaxyl (100 ppm) has been reported efficacious in controlling foot rot disease of *Piper nigrum* over Bordeaux and Captafol treatments.

9202-0775 Nagaraja, T.G.(Department of Botany, The New College, Kolhapur 416 012, Maharashtra, India) **Rhizosphere and phyllosphere studies in Strychnos nux-vomica Linn..** *Advances in Plant Sciences*, v. 4(1): p. 171-173, 1991 (4 ref, Eng).

Thirty one species belonging to thirteen genera have been recorded from rhizosphere and twenty two species belonging to fifteen genera were recorded from phyllosphere of *S.nux-vomica*. Major contributorsin rhizospere as per decreasing abundance values were Aspergillus, Penicillium, Rhizopus, Fusarium and Mucor. In phyllosphereAspergillus, Penicillium and Fusarium were dominant followedby Rhizopus, Cephalosporium and Cladosporium.

9202-0776 Nair, P.K.U., Sasikumaran, S.(Pepper Research Station, Panniyur, Taliparamba 670141, Kerala, India) **Effect of some fungicides on quick wilt (foot rot) disease of black pepper.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 95-96, 1991 (4 ref, Eng).

All the four fungicides tried in the experiment were found to reduce the incidence of quick wilt disease caused by *Phytophthora palmivora* in *Piper nigrum*.

9202-0777 Prakasam, V., Sridharan, S. , Parthiban, S., Thamburaj, S.(Horticultural Research Station, Yercaud 636602, TN, India) **Reaction of turmeric cultures to leaf spot disease (Collectotrichum capsici) under Shevroy hill conditions.** *South Indian Horticulture*, v. 39(3): p. 166-167, 1991 (1 ref, Eng).

Incidence of leaf spot disease ranged from 23.94 to 37.23 percent in different six turmeric cultures. The culture TC3 recorded the least incidence of 23.94 percent followed by CO.1 (26.94 percent) and BSRI (28.75 percent). The culture TC4 showed maximum disease incidence of 37.23 percent.

9202-0778 Prakasam, V., Thamburaj, S. , Sridharan, S., Parthiban, S.(Horticultural Research Station, Yercaud 636602, TN, India) **Incidence of brown root rot (Fomes noxius Corner) in clove plantations of Shevroy hills.** *South Indian Horticulture*, v. 39(3): p. 171, 1991 (5 ref, Eng).

Eugenia caryophyllatum trees infected with brown root rot showed slow decline and wilting symptoms. The root system showed extensive decaying and brown discolouration. The pathogen survives in the decaying woods as well as the stumps left after felling of the trees, which have been reported as the source of infection.

9202-0779 Prakasam, V.(Horticultural Research Station, Tamil Nadu Agricultural University, Thadiyankudisai, TN, India) **Red leaf spot of cinnamon in Lower Pulney hills of Tamil Nadu.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 123, 1991 (2 ref, Eng).

Red leaf spot disease of *Cinnamomum zeylanicum* caused by *Collectotrichum capsici* has been reported for the first time. The infection appeared as small and red circular spots near the margins of the leaves which later extended and caused reddish elongated spots with dark red margins. In severe cases, the symptoms were seen on entire leaf lamina, leading to drying and defoliation. Shot hole symptoms were also noted.

9202-0780 Shankariah, V., Zaheruddin, S.M. , Reddy, L.K., Vijaya (Regional Sugarcane and Rice Research Station, Rudrus, Andhra Pradesh, India) **Rhizome rot complex on turmeric crop in Nizamabad district, Andhra Pradesh.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(3): p. 104-106, 1991 (2 ref, Eng).

Pythium sp. has been reported as the primary causal organism of turmeric rhizome rot, activity of fly maggots was found to be secondary. Incidence of rhizome rot was more in the places where maize was sown as intercrop. Positive relationship between continous rains and rhizome rot occurrence was noticed.

9202-0781 Sharma, S.K., Dohroo, N.P.(Dr YS Parmar University of Horticulture and Forestry, Solan 173230, HP, India) **Post-harvest management of rhizome rot (Fusarium oxysporum f. sp. zingiberi Trujillo) of ginger through chemical and antagonist.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 150-152, 1991 (6 ref, Eng).

Two fungitoxicant i.e. Bavistin (0.1 percent) and Bavistin+Dithane M-45 (0.25 percent) and an antagonist i.e. Gliocladium virens, were found effective in managing storage rot of *Zingiber officinale* rhizomes.

9202-0782 Sivakumar, C.V., Vidyasekharan, P.(Center for Plant Protection Studies, TN Agricultural University, Coimbatore 641003, TN, India) **Control of Meloidogyne incognita on Coleus forskohlii with Paecilomyces lilacinus in farm yard manure amended and amended soil.** *Journal of Biological Control*, v. 4(1): p. 68-69 , 1990 (1 ref, Eng).

Coleus forskohlii a spice and a condiment crop is highly susceptible to the root knot nematodes. Using the test plant, the influence of amending soil with organinc manure, on biocontrol of *Meloidogyne incognita* with *Paecilomyces lilacinus* was investigated glass houses. The results indicate that *P.lilacinus* controls in *M.incognita* in a soil of very poor organic matter status only when amended with farm yard manure. NSL, New Delhi.

9202-0783 Smith, L.M.II, Hanson, P.M.(Egerton University, Box 536, Njoro, Kenya) **Yield reduction in pyrethrum caused by Thrips nigropilosus Uzel. (Thysanoptera: Thirpidae).** *Tropical Agriculture (Trinidad)*, v. 68(3): p. 235-238 , 1991 (8 ref, Eng).

The effect of pyrethum thrips on yield of *Chrysanthemum cinerariaefolium* was investigated using three densitites of thrips and three pyrethrum clones. Clones differed in their response to increasing thrips-days. Clone 4331 was most sensitive, followed by MA/71/423 and SB/66/107. Yield reduction by *T.nigropilosus* was caused by reduction in flower numbers; the pyrethrin content of the flowers was not affected. Taylor's Power Law showed that sampling parameters were the same for all clones and insecticide treatments. Econominc injury levels for the three clones were determined. Pooled over clones, the economic injury level based on control costs in the study was 416 thrips-days 25/leave. This low level justifies control of thrips as soon as they are discovered on pyrethrum plants. It is suggested that clonal selection for resistance to thrips should be an important aspect of control of thrips in pyrethum.

9202-0784 Sontakke, B.K., Mohanty, S.K., Kole, C.R.(Regional Research Station, Chiplima 768026, Orissa, India) **Insect pests of citronella.** *Indian Perfumer*, v. 35(2): p. 86-89, 1991 (13 ref, Eng).

The insect pests attacking citronella (*Cymbopogon winterianus*) and the nature of damage caused by each were ascertained for the first time by observing citronella crops grown in the Regional Research Station, Chiplima, Orissa University of Agriculture and Technology during 1987 and 1988. Seven insect pests were found to infest root, stem and leaves of the crop resulting in wild to severe damage. The most serious pests were shoot borer, *Chilo infuscatellus* and termite *Microtermes obesi*. Other pests recorded, such as, white grub, thrips, grasshopper, aphid and swarming caterpillar were of minor importance.

9202-0785 Sridhar, V.N., Muthusamy, M., Naidu, R.(Cardamom Research Centre, Myladumparai, Kerala, India) **Yield loss assessment in Nilgiris necrosis infected cardamom.** *South Indian Horticulture*, v. 39(3): p. 169-170, 1991 (2 ref, Eng).

Elettaria cardamomum plants in the early infection stage recorded less reduction in the yield in contrasts to the plants with advanced stages of infection. The percent loss of the fresh capsule weight ranged from less than 1 to 85, indicating the severity of the disease in reducing the yield.

Physiology & Biochemistry

9202-0786 Ahuja, A., Sambyal, M., Kaushik, J.P.(Regional Research Laboratory(CSIR), Jammu-Tawi 180 001, JK, India) **Regulation of anthraquinone production by nutritional and hormonal factors in Cassia fistula callus cultures.** *Fitoterapia*, v. 62(3): p. 205-214, 1991 (19 ref, Eng).

Growth and production of anthraquinones by callus cultures derived from the seedlings of *C.fisula* have been studied. The effect of phytohormones, mineral constituents of basal medium, CNP ratio, maleic hydrazide and light on callus growth and anthraquinone productivity have been examined in detail.

9202-0787 Ahuja, A., Grewal, S.*, Reinhard, E.(Regional Research Labortory, Jammu Tawi 180 001, JK, India) **Hydroxylation and N-demethylation of hyoscyamine by Hyoscyamus muticus L. tissue cultures.** *Indian Journal of Experimental Biology*, v. 30(1): p. 57-59, 1992 (13 ref, Eng).

Behaviour of *H.muticus* cultures of different morphological nature, viz., callus, multiple shoots, and roots for biotransformation of hyoscyamine has been studied. In-

cubation of hyoscyamine produced 6beta-hydroxyhyoscyamine and norhyocyamine.

9202-0788 Bassols, F., Thomas, A.F.(Research Laboratory, Firmenich SA 1211 Geneva 8, Switzerland) **The occurrence of 3-phenylpropyl isobutyrate in Roman camomile oil.** *Journal of Essential Oil Research*, v. 3(5): p. 309-312 , 1991 (14 ref, Eng).

3-Phenylpropyl isobutyrate has been identified as a naturally occurring component of Roman camomiles (*Anthemis nobilis*) oil. A few other new esters were identified in the same fraction, together with tridecanal and pentadecanal.

9202-0789 Bhattacharjee, S.K., Thimmappa, D.K.(Divsion of Floriculture and Landscapings, Indian Agricultural Institute, Pusa, New Delhi 110012, India) **Studies on the growth hormone, length of cuttings and number of leaves on root formation of Pogostemon patchouli Benth..** *Indian Perfumer*, v. 35(2): p. 71-76, 1991 (10 ref, Eng).

Stem cuttings of *P patchouli.* 'Malaysian' (0-6 leaves, 10-20 cm length) were used for experiment. One set of cuttings was treated with IBA 2000 ppm in talc and another set with talc only. The former gave the highest percentage of rooting, maximum number of roots and longest roots per rooted cutting over the untreated ones. Significant beneficial effects on rooting was obtained with 15 cm cuttings. Leafy cuttings showed marked improvement in root formation over leafless cuttings. It is concluded that six leaved stem cuttings of 15 cm length when treated with IBA at 2000 ppm give best performance in rooting.

9202-0790 Bishnoi, M., Sharma, T., Purohit, G.R., Bishnoi, S.(Post Graduate Department of Botany, Dungar (Autonomous) College, Bikaner 334001, Rajasthan, India) **Studies on nutritive value of some common arid zone plants.** *Okioassay*, v. 7(1&2): p. 21-23, 1990 (7 ref, Eng).

Nutritive status of *Leptadenia pyrotechnica*, *Crotalaria burhia* and *Aerva persica* which are the common arid zone plants were ascertained. The maximum content of crude protein (6.87 percent), calcium (1.45 percent) and phosphorus (0.33 percent) were found in *Aerva persica* ether extract contents were almost similar in three plants whereas total ash was found to be maximum (14.30percent) in *C.burhia* on dry matter basis. NSL, New Delhi.

9202-0791 Bopaiah, B.M.(CPCRI, Regional Station, Vittal 574243, Karnataka, India) **Studies on cocoa processing. III. Cotyledon pH as an index of fermentation.** *Indian Cocoa, Arecanut and Spices Journal*, v. 14(4): p. 145-147, 1991 (11 ref, Eng).

Raw *Erythroxylum coca* beans are fermented to remove the muscilagenous pulp, to impart colour and to develop flavour and aroma precursors, followed by drying to reduce the moisture level for safe storage. The exact point of termination of fermentation and the withdrawl of beans for drying is important to obtain quality beans. Possibility to decide the termination of fermentation by monitoring the cotyledon pH has been reported.

9202-0792 Chand, R., Rastogi, D., Singh, J.M. , Srivastava, L.J. (Department of Forest Products and Utilization, College of Forestry, University of Horticulture and Forestry, Nauni 173230, Solan, HP, India) **Variation of solasodine in Solanum laciniatum Ait. during different growth intervals.** *Indian Drugs*, v. 29(2): p. 61-64, 1991 (10 ref, Eng).

The solasodine content was found maximum (1.99 percent) in fully developed dark green coloured leaves *S.laciniatum* which marginally decreased with further advancement of leaf age to 1.72 percent in yellow coloured leaves. In berries, solasodine content increased with the age of berries reaching its maximum level (4.24 percent) in the biologically mature dark green coloured berries of 56 days age. Further maturity of the berries resulted in sharp decline in solasodine content to a minimum value of 0.76 percent in over ripe berries.

9202-0793 Chang, S.O., Lu, C.Y.*, Li, S.Y. , Wei, Y.H. (Department of Biochemistry, National Yang-Ming Medical College, Taipei, Taiwan, Republic of China) **Potentiation effect of corn extract on the production of eremofortin C, EC oxidase, and PR toxin by Penicillium roqueforti.** *Proceedings of the National Science Council, Republic of China*, v. 15(3B): p. 153-159, 1991 (21 ref, Eng).

Eremofortin C (EC) and PR toxin are secondary metabolites of Penicillium roqueforti. Their structures are similar and differ only by an alcohol and an aldehyde group at the C-12 position. EC has been demonstrated to be the precursor of PR toxin, and EC is transformed to PR toxin by EC oxidase. In a time-course study, the peak yield to EC and PR toxin and the maximum activity of EC oxidase in the culture medium containing 7.5 percent sucrose, 1 percent yeast extract, and 20 percent corn extract were increased 6.2, 4.6 and 4.7-fold, respectively, as compared with those obtained in the medium without corn extract. Moreover, corn extract increased the production of EC and PR toxin and the activity of EC oxidase by *P.roqueforti* in a dose-dependent manner. On the other hand, when the concentrations of sucrose and yeast extract were increased while fixing the ratio of corn extract, the levels of EC and PR toxin and the enzyme activity were decreased concomitantly. Corn extract can enhance the production of EC, PR toxin

and EC oxidase by *P.roqueforti* when grown in a minimal medium and that the potentiation effect of corn extract is suppressed when the fungi are grown in a rich medium.

9202-0794 Chen, R., Zhang, J., Li, B. , Guo, S., Hao, J., Zhou, X. (Department of Biology, Shanxi University, Taiyuan, China) **Studies on the production of artificial seeds of coriander.** *Chinese Journal of Biotechnology*, v. 7(2): p. 127-134 , 1991 (15 ref, Eng).

Production of artificial seeds of *Coriandrum sativum* by manipulating callus and somatic embryo formation as well as embryo encapsulation has been reported. The germination capacity of the artificial seeds under sterile conditions reached 82 percent, and the survival rate of seedlings was more than 83 percent after they were transplanted into soil. IARI, New Delhi.

9202-0795 Chourasia, H.K., Roy, A.K.(Medicinal Plants Research Laboratory, University Department of Botany, Bhagalpur University, Bhagalpur 812007, Bihar, India) **Effect of temperature, relative humidity and light on aflatoxin B1 production in neem and Datura seeds.** *International Journal of Pharmacognosy*, v. 29(3): p. 197-202, 1991 (Eng).

The effect of temperature, relative humidity and light on elaboration of Afl-B1 in neem (*Azadirachta indica*) and Datura (*Datura stramonium*) seeds was studied. The highest level of Af1-B1 production in case of both seeds (0.55-1.12 micro g/g in *Datura* seeds and 0.47-1.15 micro g/g in neem seed) was recorded at 30 degree C temperature, 96 perecent RH and total darkness after 3 weeks of incubation. The growth of *A.flavus* and aflatoxin production was inhibited at 33-35 percent RH and 10 degree C temperature. Darkness favoured the synthesis of Af1-B1 whereas sunlight inhibited it completely.

9202-0796 Colombo, M.L., Tome, F.(Istituto di Scienze Farmacologiche, Universita di Milano, Via Balzaretii 9, 1-20133 Milano, Italy) **Production of sanguinarine by Chelidonium majus callus cultures.** *Planta Medica*, v. 57(5): p. 428-429, 1991 (14 ref, Eng).

Tissue callus cultures originating from *C.majus* seeds were established on Gamborg B5, Murashige-Skoog, and Schenk-Hildebrandt media. In all experimental conditions, calli accumulated a complex pattern of isoquinoline derivatives. The highest values, both in growth and in sanguinarine production, were obtained using SH medium.

9202-0797 Corchete, M.P., Jimenez, M.A. , Moran, M., Cacho, M., Fernandez-Tarrago, J.(Departamento de Biologia Vegetal, Laboratorio de Fisiologia Vegetel, Facultad de Farmacia, Universidad de Salamanca, 37007, Salamanca, Spain) **Effect of calcium, manganese and lithium on growth and cardenolide content in cell suspension cultures of Digitalis thapsi L..** *Plant Cell Reports*, v. 10(8): p. 394-396, 1991 (11 ref, Eng).

The elimination of calcium in cell suspension cultures of *D.thapsi* grown in MS medium reduced growth and viability of cultures but promoted digoxin formation. An increase in MnSO4 concentration or the addition of LiCl resulted in higher digoxin content. Under such conditions growth was not affected. IARI, New Delhi.

9202-0798 Gabler, A., Boland, W.*, Preiss, U. , Simon, H.(Institut fur Organische Chemie der Universitat, Richard-Willstatter-Allee 2, DW-7500 Karlsruhe, Germany) **Stereochemical studies on homoterpene biosynthesis in higher plants' mechanistic, phylogenetic, and ecological aspects.** *Helvetica Chimica Acta*, v. 74(8): p. 1773-1789, 1991 (29 ref, Eng).

In higher plants, the two homoterpenes 4,8-dimethylnona-1,3,7-triene and 4,8,12-trimethyltrideca-1,3,7-11-tetrane originate from nerolidol or geranyllinalool by an oxidative cleavage of their C-skeletons. The reaction proceeds with exclusive loss of Hs-C(5) of geranyllinalool and formal production of a C4 fragment. The site specificity of the enzyme(s) is identical for all of the hitherto examined plants *Yucca filamentosa, Hoya purpureo-fusca, Erigeron annuus, Helianthus annuus, H.decapetales, Phaseolus lunatus, Robinia pseudoacacia, Magnolia liliiflora nigra,* and *Philadelphus coronarius*. The enzyme tolerates a wide range of structural modifications at the polar head of nerolidol.

9202-0799 Gbolade, A.A., Lockwood, G.B.(Department of Pharmacognosy, Faculty of Pharmacy, Obafemi Awolowo University, Ile-Ife, Nigeria) **Growth and production of volatile substances by Melissa officinalis and Petroselinum crispum cultures.** *Fitoterapia*, v. 62(3): p. 237-242, 1991 (15 ref, Eng).

Callus cultures induced from sterile seedlings of *M.officinalis* and *P.crispum* were shown to exhibit growth characteristics which were dependent on hormonal combinations. 2,4-Dichlorophenoxyacetic acid was observed to stimulate proliferation of both callus cultures were alpha-naphthalenacetic acid encouraged mainly root and shoot formations. Under varying culture conditions, cultures of *M.officinalis* only accumulated volatile non-terpenic constituents which were not characteristic of the parent plant. Productivities of cultures of *P.crispum* were in favour of some intact plant aroma constituents.

9202-0800 George, S., Arumughan, C.(Food Science and Biochemistry Division, Regional Research Laboratory,

CSIR, Trivandrum 695019, Kerala, India) **Distribution of lipids in the exocarp and mesocarp of three varieties of oil palm fruit Elaeis guineensis.** *Journal of the Science of Food and Agriculture*, v. 56(2): p. 219-222, 1991 (13 ref, Eng).

Distribution of lipids in the oil palm (*E.guineensis*) fruit from three varieties (dura, tenera, pisifera) were studied. Extremely high contents of phospholipids and glycolipids were noticed in the exocarp (outer skin) of the fruit compared with the fleshy mesocarp. Significant differences were also observed in the composition of the lipid classes of oil palm fruits from three varieties. High concentrations of unsaturated fatty acids, particularly 18:2 and 18:3, were present in the polar lipids and correspondingly lower proportions in the neutral fractions.

9202-0801 Hamada, H., Nakazawa, K.(Department of Applied Science, Okayama University of Science, 1-1 Ridai-cho, Okayama 700, Japan) **Biotransformation of vinblastine to vincristine by cell suspension cultures of Catharanthus roseus.** *Biotechnology Letters*, v. 13(11): p. 805-806, 1991 (5 ref, Eng).

Cell suspension cultures of *C.roseus* was found to convert vinblastine to vincristine after two days of incubation. In absence of the callus no such change was oberved. Characterization of vincristine has also been reported. IARI, New Delhi.

9202-0802 Harsh, M.L.(Department of Botany, Dungar College, Bikaner 334001, Rajasthan, India) **Role of plant growth regulators in tissue culture of Citrullus colocynthis Linn. and Peganum harmala Linn..** *Okioassay*, v. 7(1&2): p. 35-37, 1990 (14 ref, Eng).

Static cultures of *C.colocynthis* and *P.harmala* were established and allowed to grow for a period of twelve months by frequent subculturing. Tissues were harvested at their transfer age of 2,4,6 and 8 weeks, dried and growth indices calculated based on dry weight. The organised cultures of *C.colocynthis* obtained from epocotyledonary and hypocotyledonary regions showed extensive root formation with root hairs which were light brown in colour and compact in nature. In *P.harmala*, however, undifferentiated callus tissue was initiated from cotyledons which was greenish yellow in colour and fragile in texture. The maximum growth index in case of tissue of *C.colocynthis* was 2,7, whereas in tissue of *P.harmala* it was 9.2. NSL, New Delhi.

9202-0803 Hemscheidt, T., Spenser, I.D.(Department of Chemistry, McMaster University, Hamilton, Ontario L8S 4M1, Canada) **Biosynthesis of anosmine, an imidazole alkaloid of orchid Dendrobium parishii.** *Journal of the Chemical Society, Chemical Communications* , No. 7, p. 494-497, 1991 (10 ref, Eng).

Tracer experiments with 13C and 15N doubly labelled substrates show that the orchid alkaloid anosmine is derived from two lysine units, one of which is incorporated by way of cadiverine, the other presumably via pipecolic acid.

9202-0804 Herbert, R.B.(School of Chemistry, University of Leeds, UK) **The biosynthesis of plant alkaloids and nitrogenous microbial metabolites.** *Natural Product Reports*, v. 8(2): p. 185-209, 1991 (137 ref, Eng).

The review covers the literature published between Aug 1988 and July 1989. Topic covered include pyrrolidine alkaloids, pyrrolizidine and quinolizidine alkaloids, benzyl isoquinoline alkaloids, terpenoid indole alkaloids, acridone alkaloids, sceletium alkaloids etc..

9202-0805 Hirata, K., Horiiuchi, M., Ando, T. , Asada, M., Miyamoto, K., Miura, Y.(Department of Biochemical Engineering, Faculty of Pharmaceutical Sciences, Osaka University, 1-6, Yamadaoka, Suita, 565, Japan) **Effect of near-ultraviolet light on alkaloid production in multiple shoot cultures of Catharanthus roseus.** *Planta Medica*, v. 57(5): p. 499-500, 1991 (9 ref, Eng).

In multiple shoot cultures of *C.roseus*, near-ultraviolet light with a peak at 370 nm stimulated the production of leurosine, one of the major dimeric indole alkaloids. In contrast, the contents of vindoline and catharanthine were decreased greatly by this light treatment.

9202-0806 Hook, I., Sheridan, H., Wilson, G.(Department of Pharmacognosy, School of Pharmacy, Trinity College Dublin, 18 Shrewsbury Rd., Dublin 4, Ireland) **Volatile metabolites from suspension cultures of Taraxacum officinale.** *Phytochemistry*, v. 30(12): p. 3977-3979, 1991 (17 ref, Eng).

A suspension culture of *T.officinale* (dandelion) was developed and maintained on modified Gamborg's B5 and Murashige and Skoog's media. Volatile metabolites, which collectively had an 'apple-like' odour, were released into the head-space air above the cultures. Analysis by GC-MS indicated the presence of acetic acid butyl ester, 2-methyl-1-propanol, n-butyl alcohol, 4-phenyl-1-butanol, 4-hydroxy-4-methyl-2-pentanone, acetic acid, 4-terpineol, beta-terpineol and alpha-terpineol.

9202-0807 Jha, S., Sahu, N.P., Sen, J. , Jha, T.B., Mahato, S.B.* (Indian Institute of Chemical Biology, 4, Raja Subodh Mullick Road, Jadavpur, Calcutta 700032, West Bengal, India) **Production of emetine and cephaeline from cell suspension and excised root cultures of Cephaelis**

ipecacuanha. *Phytochemistry*, v. 30(12): p. 3999-4003, 1991 (23 ref, Eng).

Production of the ipecac alkaloids, emetine and cephaeline was studied in cell suspension and excised root cultures of *C.ipecacuanha*. A two-stage cell suspension culture was developed for enhanced accumulation of the alkaloids. The production of emetine and cephaeline was greatly increased in the two-stage culture method compared to the single-stage culture. Optimal alkaloids synthesis was obtained in excised root culture of the plant in medium composed of half-strength MS salts, IBA (0.25 mg per litre) and 2 percent sucrose. A discernible higher accumulation of cephaeline in two-stage cell suspension culture as well as in excised root culture in comparison to that of the three-year-old roots was attained.

9202-0808 Johnson, E.L., El-Sohly, M.A.(United States Department of Agriculture, Agricultural Research Service, Plant Sciences Institute, Weed Science Laboratory, 308 BARC-W, 10300 Baltimore Ave., Beltsville, Maryland 20705-2350, USA) **Content and De Novo synthesis of cocaine in embryos and endosperms from fruit of Erythroxylum coca Lam.**. *Annals of Botany*, v. 68(5): p. 451-453, 1991 (17 ref, Eng).

E.coca var. *coca* has been reported to contain the highest quantity of the cocaine alkaloid (benzoylmethylecgonine) among the alkaloid-bearing species of *Erythoxylum*. Separated embryos and endosperms were analysed for cocaine. Cocaine was found to be present in embryos (0.005 percent of d wt) and endosperms (0.001 percent of d wt) of mature fruit of *E.coca*. De Novo synthesis of cocaine occurred only in embryos of seed imbibed under light after day g of imbibition. IARI, New Delhi.

9202-0809 Kitamura, Y., Sugimoto, Y. , Samejima, T., Hayashida, K. , Miura, H.(Faculty of Pharmaceutical Sciences, Nagasaki University, Bunkyo-machi 1-14, Nagasaki 852, Japan) **Growth and alkaloid production in Duboisia myoporoides and D.leichhardtii root cultures.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1263- 1266, 1991 (13 ref, Eng).

Root cultures of *D.myoporoides* and *D.leichhardtii* have been established from granular tissues isolated from a culture line of callus. Roots differentiated from the granular tissues, and vigorously grew in liquid Murashige-Skoog medium supplemented with indole-3-butyric acid (2mg/l) and gibberellic acid (1mg/l). These cultured roots produced atropine, scopolamine and nicotine. Furthermore, anabasine and nornicotine were detected in root cultures of *D.myoporoides*, and apoatropine in *D.leichhardtii* root cultures. A high concentration (7-10 percent(w/v)) of sucrose in the medium was effective in improving both root growth and tropane alkaloid production.

9202-0810 Kokate, C.K., Gopal, M.V., Apte, S.S., Veeresham, C., Vekateshwarlu, V.(University College of Pharmaceutical Sciences, Kakatiya University, Warangal-506 009, AP, India) **Effect of ageing on EKP of cells in callus cultures derived from explants of T.foenum-graecum.** *Indian Journal of Natural Products*, v. 6(2): p. 3-6 , 1991 (9 ref, Eng).

Electrokinetic potential (EKP) patterns of cells in callus cultures derived from radicle cotyledon and leaf of *T.foenum graecum* were determined. The cells in static cultures exhibited negative EKP values. Different levels of incubation and miotic and growth indices during ageing reveal a broad qualitative correlation between these parameters. On regression analysis of surface charge parameter versus growth parameter, statistically significant correlation could be revealed.

9202-0811 Krajewska, A., Szoke, E.(Instytut Roslin i Przetworow Zielarskich, ul. Libelta 27, 61-707 Poznan, Polska) **The studies on regenerated cultures of Lobelia inflata L..** *Herba Polonica*, v. 35(4): p. 171-178, 1989 (Recd. 1991, 12 ref, Pol, Eng).

Regeneration of culture of *L.inflata*, obtained by spontaneous organogenesis of callus originating from seedling has been studied. The influence of concentration of 3-indolacetic acid (IAA), kinetin (Kin) and aminoacids (Phe, Lys) in the medium on tissue growth and alkaloid production has been determined. Cultures maintain the capacity for synthesis of lobeline-like alkaloids. Addition of phenylalanine to the medium (10-4 M/1) has caused seven times increase of lobeline concentration in tissues in comparison with basic medium (MS+IAA+Kin 2/0,2 mg/l). It has been shown that cultures contain exceptionally high content of serine.

9202-0812 Leela, N.K., Krishnan, R., Nanaiah, K.M.(Indian Institute of Horticultural Research, Hessaraghatta Lake, Bangalore 560 089, Karnataka, India) **Effect of triacontanol on solasodine content in Solanum viarum.** *Indian Drugs*, v. 29(3): p. 119-120, 1991 (5 ref, Eng).

In *S.viarum* berries, harvested after triacontanol treatment, solasodine content in diploid berries was lower (1.24 percent) compared to autotetraploids (2.60 percent). Both diploids and autotetraploids showed higher values following two sprays of triacontanol (at 30 and 60 days). Such increase in solasodine content in diploids was substantial (65.3 percent), whereas in autotetraploids it was marginal (10 percent).

9202-0813 Luthra, R., Singh, N., Sharma, S.(Central Institute of Medicinal and Aromatic Plants, Post Bag 1, PO Ram Sagar Misra Nagar, Lucknow 226016, UP, India) **Changes in monoterpene content accompanying development of Cymbopogon winterianus Jowitt leaves.** *Journal of Essential Oil Research*, v. 3(5): p. 349-354 , 1991 (18 ref, Eng).

At different developmental stages, citronella java (*C.winterianus*) leaves were analyzed for essential oil content and composition. Only immature leaves (upto 75 percent leaf expansion) were biogenetically active to synthesize and accumulate essential oil substantially. The relative percentage of geraniol and citronellol in the oil from immature leaf increased with increase in tissue age along the leaf blade, and was accompanied by a corresponding decrease in geranyl acetate and citronellyl acetate. During leaf ontogeny, the amount of citronellal, geraniol and citronellol in the essential oil increased with leaf expansion; whereas, the amount of geranyl acetate and citronellyl acetate decreased. As the leaf matured, a significant decrease in the essential oil, citronellal and geraniol contents was observed.

9202-0814 Mathur, S.R.(Department of Plant Physiology, Rajasthan College of Agriculture, Rajasthan Agriculture University, Udaipur 313001, Rajasthan, India) **Physiology and histochemistry of seed germination and early seedling growth in Lathyrus sativus.** *Plant Physiology and Biochemistry*, v. 17(1): p. 48-54 , 1990 (26 ref, Eng).

Histochemical localisation of various biochemicals Viz., carbohydrates, proteins, nucleic acids and enzymes were carried out. The anatomy of seed and seedling constituents were of typical dicot pattern and carbohydrates were mainly stored in the cotyledons. The globulin was the main constituent of the storage protein. The cell and tissues of the seedling constituents involved in the processes of differentiation usually indicates a low level of protein, nucleic acids and activities of various enzymes. NSL, New Delhi.

9202-0815 Mazzafera, P., Crozier, A. , Magalhaes, A.C. (Departamento de Fisiologia Vegetal, Instituto de Biologia, Universidade Estadual de Campinas, 1381 Campinas, Sao Paulo, Brazil) **Caffeine metabolism in Coffea arabica and other species of coffee.** *Phytochemistry*, v. 30(12): p. 3913-3916, 1991 (14 ref, Eng).

High performance liquid chromatography has been used to measure the quantities of caffeine, theobromine and theophylline in aqueous extracts of endosperms from immature and mature fruits of *C.arabica* and six other species of *Coffea*. The highest concentrations of caffeine were found in *C.canephora*, at 35.1 and 24.5 mg/g, respectively in immature and mature endosperms. Caffeine could not be detected in extracts from mature fruits of *C.bengalensis*. Labelled caffeine was metabolised relatively slowly by immature endosperms of *C.arabica* and *C.canephora*. In contrast, *C.dewevrei*, *C.eugenioides*, *C.stenophylla*, *C.salvatrix* and *C.bengalensis* all appeared to metabolise labelled caffeine much more rapidally. Potantial sources of material for the production of naturally decaffeinated coffee are discussed.

9202-0816 Nunome, S., Okada, M., Mitsuhashi, H.(Research Institute for Biology & Chemistry, Tsumura & Co., 3586 Yoshiwara, Ami-machi, Inashiki-gun, Ibaraki 300-11, Japan) **Preliminary studies on the evaluation of Sinomeni caulis rhizoma.** *Shoyakugaku Zasshi*, v. 45(1): p. 40-45, 1991 (11 ref, Jap, Eng).

The seasonal and segmental variations of the two main alkaloids, sinomenine and magnoflorine, in the stems of *Sinomenium acutum*, the origin of Sinomeni caulis and rhizoma were quantitatively analyzed by HPLC. The amounts of the two alkaloids contained were higher in winter than in summer. The erect stems with root contained more sinomenine and less magnoflorine than the stems without root throughout the seasons. The seasonal variations in the sinomenine content in the stems with no root were considerable.

9202-0817 Pal, S.(Division of Agronomy, Regional Research Laboratory, Jammu-Tawi 180 001, JK, India) **Effect of different plant growth stages on herb yield, oil content and thymol in Ocimum viride Willd..** *Madras Agricultural Journal*, v. 77(7&8): p. 329-331 , 1990 (5 ref, Eng).

Maximum herb yield/plant was recorded at early seedling stage followed by late seedling, flower initiation, blooming and minimum at negetive phase. The maximum oil content was observed at 50 percent blooming and showed stability upto full blooming and minimum was at negetive phase and late seedling stage. Thymol was found to vary between 30.34 to 55.12 percent in the oil at different growth stages of the plant. It was maximum (55.12 percent) when the plant was at fullbloom and thereafter declined.

9202-0818 Priyadarshan, P.M., Madhusoodanan, K.J.(SPI/462, 'Karthika', Kariavattam, Thiruvananthapuram 695581, Kerala, India) **Spices and biotechnology.** *Indian Spices*, v. 28(2): p. 17-21, 1991 (19 ref, Eng).

Specific goals in current biotechnology research on spices have been discussed. Production of cardamom and saffron through micropropagation technology using gene transfer technology, isogenic lines, clonal composites and clonal blends have been reported.

9202-0819 Robins, R.J., Bent, E.G., Rhodes, M.J.C.(Plant Biotechnology Group, Genetics and Microbiology Department, AFRC Institute of Food Research, Norwich Science Park, Colney, Norwich NR4 7UA, UK) **Studies on the biosynthesis of tropane alkaloids by Datura stramonium L. transformed root cultures. 3. The relationship between morphological integrity and alkaloid biosynthesis.** *Planta*, v. 185(3): p. 335-390, 1991 (22 ref, Eng).

In transformed root cultures of *D.stramonium*, competent in tropane alkaloid biosynthesis, combination of alpha-NAA, kinetin and 2,4-D inducned de-differentiation, causing both the rooty phenotype and hyoscyamine-biosynthetic capacity to be lost. Alkaloid biosynthesis disappeared rapidly and prior to the loss of morphological integrity. The relationship between the morphological state and alkaloid-biosynthetic capacity of the cultures is discussed in relation to the overall control of alkaloid biosynthesis. IARI, New Delhi.

9202-0820 Sen, S.K., De, R.K., Bandyopadhyay, A.(Department of Horticulture, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, WB, India) **Effect of preconditioning stock plant and exogenous application of growth regulators on rooting of semi-hard wood cuttings of aonla (Emblica officinalis Gaertn.).** *Advances in Plant Sciences*, v. 3(2): p. 195-199, 1990 (15 ref, Eng).

Blanching, ringing of shoot of stock plant and spraying of ethrel 100 ppm before taking cutting improved success in aonla*E.officinalis* semi-hard wood cutting. Maximum rooting success of 73.33 percent was observed in semi-hard wood cutting of aonla taken from shoots blanched and sprayed with ethrel 100 ppm and subsequently treated with IBA plus NAA each at 5000 ppm. Highest number of roots of 6.44 per cutting, maximum root length of 4.5 cm and maximum root dry weight of 260 mg per cutting were obtained under this treatment. IBA was found more effective than NAA in inducing rooting in pretreated aonla cuttings.

9202-0821 Sharma, N., Sharma, A.K., Zafar, R.(Department of Pharmacognosy and Phytochemistry, Hamdard College of Pharmacy, Hamdard Nagar, New Delhi 110062, India) **Indole alkaloids in the callus culture of Ipomoea muricata Linn..** *Indian Journal of Pharmaceutical Sciences*, v. 52(2): p. 111-112, 1990 (3 ref, Eng).

Presence of indole alkaloids in the seeds, seedlings and callus culture of *I.muricata* has been discussed. The comparative indole alkaloid contents of brown-black and yellowish-white varieties were found to be 4.85 micro g/g and 0.27 micro g/g respectively. The alkaloid content of seedling callus of brown-black variety was 11.0 micro g/g.

9202-0822 Shobahalan, A.R.(Tamil Nadu Agricultural University, Coimbatore 641003, TN, India) **Chemical changes in the quality parameters of garlic (Allium sativum L.) during growth and development.** *South Indian Horticulture*, v. 39(2): p. 93-95, 1991 (8 ref, Eng).

Major nutrient elements declined in the tops and roots of garlic during bulb development. The levels of micronutrients decreased in the tops during bulb development period and accumulated in the bulbs. The bulbs were found to contain high percentage of reducing and non-reducing sugars and proteins than other organs of the plant.

9202-0823 Sierra, M.I., van der Heijden, R. , Schripsema, J., Verpoorte, R.(Center for Bio-Pharmaceutical Sciences, Division of Pharmacognosy, Leiden University, Gorlaeus Laboratoria, PO Box 9502, 2300 RA Leiden, The Netherlands) **Alkaloids production in relation to differentiation in cell and tissue cultures of Tabernaemontana pandacaqui.** *Planta Medica*, v. 57(6): p. 543-547, 1991 (20 ref, Eng).

Alkaloid production in *T.pandacaqui* cultures is dependent on the degree of differentiation. At high levels of production the major alkaloid found was 3S-hydroxyvoacangine. This alkaloid has not previously been isolated from any plant. Micropropagation of *T.pandacaqui* was quick and highly efficient.

9202-0824 Speroni, E., Coletti, B., Minghetti, A., Crespi P, N., Guicciardi, A., Vincieri, F.F.*(Department of Pharmaceutical Sciences, University of Firenze, Firenze, Italy) **Activity on the CNS of crude extracts and of some diterpenoids isolated from Euphorbia calyptrata suspended cultures.** *Planta Medica*, v. 57(6): p. 527-530, 1991 (21 ref, Eng).

Crude methanolic extracts from both root and cell cultures of *E.calyptrata* were investigated and found to be active on the CNS. An active fraction was isolated from the methanolic extract of suspension cultures, this possesses significant depressant activity on the CNS. When compared with the crude methanolic root extract, this fraction showed the presence of some common products, four of which isolated and characterized as helioscopinolides A, C, D and E. The pure products, administered intraperitoneally to mice, showed different activities on the CNS. Helioscopinolide C showed a clear depresant activity, helioscopinolide E a mild, short depressant effect, while helioscopinolides A and D had an opposite excitatory effect.

9202-0825 Suzuki, H., Suga, C., Morimoto, T. , Harada, M.(National Institute Hygienic Sciences, 18-1, Kamiyoga 1-chome, Setagaya-ku, Tokyo 158, Japan) **Quantitative analysis of plant hormones, auxins, in biotechnologically**

cultured products of medicinal plants. *Shoyakugaku Zasshi*, v. 45(2): p. 137-141, 1991 (11 ref, Eng).

The cultured cells of *Coptis* plant and *Lithospermum* plant were analyzed for the residual levels of auxins, (3-indoleacetic acid (IAA) and alpha-naphthylacetic acid (NAA)). The procedures of clean-up and HPLC using a reversed-phase column were studied. 0.1 N sodium hydroxide extracts of samples were sucessively partitioned between water and ether. Two solvent mixtures of water-acetonitrile-glacial acetic acid were used as the mobile phase for HPLC. A fluorescence monitor was applied whose detection limit of each auxin was 0.1 ppm in the samples. The recovery of spiked auxins at 5 ppm level was almost quantitative (84.3 to 103 percent). When 1.9 ppm of NAA was used as the only auxin in the culture medium, 0.5 ppm of it remained in the fresh cultured *Coptis* cells. When IAA was used at the same level, it was not detected in the cells: it appears to have been comparatively used up easily during the culture.

9202-0826 Tanaka, S., Uno, C., Akimoto, M. , Tabata, M.*, Honda, C., Kamisako, W.(Faculty of Pharmaceutical Sciences, Kyoto University, Yoshida, Kyoto 606, Japan) **Anti-allergic effect of bryonolic acid from Luffa cylindrica cell suspension cultures.** *Planta Medica*, v. 57(6): p. 527-530, 1991 (21 ref, Eng).

The anti-allergic activity of bryonolic acid (1) isolated from the cultured cells of *L.cylindrica* was compared with that of glycyrrhetinic acid (2), the glycone of glycyrrhizin from licorice (*Glycyrrhiza*) sp. Compound 1 when administered to rats intraperitoneally at a dose of 600 mg/kg, inhibited homologous passive cutaneous anaphylaxis more strongly than 2 at the same dose. Compound 1 also significantly inhibited delayed hypersensitivity in mice which could not be inhibited by 2. In contrast to 2, 1 showed not only little toxicity but no visible side effects on mice, without impairing the activity of the hepatic enzyme involved in steroid catabolism.

9202-0827 Toyokawa, S., Takeda, T., Kato, Y. , Wakabayashi, K., Ogihara, Y.*(Faculty of Pharmaceutical Sciences, Nagoya City University, Tanabe-dori, Mizuho-ku, Nagoya 467, Japan) **The complete amino acid sequence of an abortifacient protein, karasurin.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1244- 1249, 1991 (17 ref, Eng).

Karasurin, which was isolated from fresh root tubers of *Trichosanthes kirilowii* var. *japonicum*, was a highly basic protein. Intact karasurin was cleaved with cyanogen bromide, lysyl endopeptidase, formic acid and 2-(2'-nitrophenyl-sulfenyl)-3-methyl-3-bromoindolenine (BNPS-skatole), respectively. Cleavages with N-bromosuccinimide (NBS), trypsin and pepsin were performed for the fragments and the resultant peptide fragments were separated. Karasurin consists of 246 or 247 amino acid residues with a calculated molecular weight of 27144 or 27215 differing only at the C-terminus with the addition of alanyl residue. Two C-terminal sequences were identified as Asn-Asn-Met-OH and Asn-Asn-Met-Ala-OH by sequence analyses and hydrazinolysis, but there was no micro-heterogeniety in other peptides analysed. The sequence of karasurin revealed a considerable similarity to that of trichosanthin and alpha-trichosanthin, which are known as abortifacient, ribosome-inactivating and anti human immunodeficiency virus proteins, with 93 percent and 98 percent identity, respectively.

9202-0828 Unander, D.W.(Foxchase Cancer Center, 7701 Burholme Ave., Philadelphia, PA 19111, USA) **Callus induction in** *Phyllanthus* species and inhibition of viral DNA polymerase and reverse transcriptase by callus extracts. *Plant Cell Reports*, v. 10(9): p. 461-466, 1991 (25 ref, Eng).

Studies on callus induction and growth in *P.amarus* and some related species as well as the inhibition of enzymes of hepatitis B and related viruses by callus extracts are described. Optimum induction of growth of friable, undifferentiated calli occurred in MS medium supplemented with either 0.5 mg/or 1 mg of BA/l and 1 mg/l of either 2,4-D or IBA, but not IAA. Aqueous extracts from field grown plants were more active in vitro against viral DNA polymerase and reverse transcriptase than extracts of calli. IARI, New Delhi.

9202-0829 Veeresham, C., Kokate, C.K. , Venkateshwarlu, V., Apte, S.S(University College of Pharmaceutical Sciences, Kakatiya University, Warangal 506009, AP, India) **Enhanced capsaicin production in immobilized cell cultures of Capsicum annum.** *Indian Drugs*, v. 29(1): p. 12-14, 1991 (12 ref, Eng).

L-ascorbic acid (50 mg/l) and D-limonene (50 mg/l) enhanced. Capsaicin content from 1.04 percent mg in control immobilized system to 2.5 percent mg and 2 percent mg respectively. The biogenetic potential of capsaicin in immobilized cell cultures was ten times more than control. Other precursors viz., cholesterol, squalene, pregnenolone, and shikimic acid in a concentration of 50 mg/l each failed to influence upon capsaicin production.

9202-0830 Veeresham, C., Kokate, C.K. , Venkateshwarlu, V. (University College of Pharmaceutical Sciences, Kakatiya University, Warangal 506009, AP, India) **Effect of age and EKP on bioproduction of emetic alkaloids in callus cultures of C.ipecacuanha.** *Indian Drugs*, v. 29(1): p. 14-16, 1991 (7 ref, Eng).

Bioproduction of alkaloids in tissue cultures of *Cephaelis ipecacuanha* was found to be inversely proportional to the age of cultures after eight weeks. Maximum production of alkaloids (0.085 percent cephaeline and 0.020 percent of emetine) was detected in eight weeks old static cultures. The systematic correlation was noticed in electrokinetic potential (EKP) values and growth of biomass upto 20 weeks of growth.

9202-0831 Zafar, R., Haque, J.(Department of Pharmacognosy and Phytochemistry, Hamdard College of Pharmacy, Hamdard Nagar, New Delhi 110062, India) **Tissue culture studies in Tribulus terrestris Linn..** *Indian Journal of Pharmaceutical Sciences*, v. 52(2): p. 102-103, 1990 (9 ref, Eng).

Presence of hecogenin, neotigogenin was noticed in the static culture of *T.terrestris* established in MS medium supplemented with IAA 1 ppm, 2,4-D 1ppm and 25 ml of coconut water.

9202-0832 Zhou, L., Zheng, G., Wang, S.(Kunming Institute of Botany, The Chinese Academy of Sciences, Kunming, China) **A study on mass culture of Panax quinquefolium cells.** *Chinese Journal of Biotechnology*, c. 6(4): p. 279-285 , 1990 (12 ref, Eng).

P.quinquefolium cells cultured in a medium by omitting the component NH4NO3 and doubling the amount of KNO3 in MS medium, grew more rapidly and their saponin content was much higher than that cultured in regular MS medium. The growth rate and saponin content of the cells cultured in such medium increased 65.1 percent and 166.2 percent respectively as compared with that cultured in the regular medium. The application of oligosaccharins from *P.ginseng* and *Dendrobium candidum* also increased their saponin content and growth rate. IARI, New Delhi.

9202-0833 Zhou, X., Kasai, R.*, Yoshikawa, M., Kitagawa, I., Tanaka, O.(Institute of Pharmaceutical Sciences, Hiroshima University School of Medicine, Kasumi, Minami-ku, Hiroshima 734, Japan) **Solubilization of saponins of Bupleuri radix with ginseng saponins: Effect of malonyl-ginsenosides on water solubility of saikosaponin-b.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1250- 1252, 1991 (10 ref, Eng).

Saikosaponins, the active principles of Bupleuri radix, (*Bupleurum sp.*) are generally sparingly soluble in water. The solubilizing effect of ginseng saponins on saikosaponin-b1(Sb1) which is formed form saikosaponin-a (Sa) by mild acid treatment, was investigated. It was revealed that the significant increase of the water-solubility of Sb1 with ginseng saponin mixture was due mainly to malonyl-ginsenosides. Some solubilizing effect was also observed with ginsenoside-ro(Ro). No solubilizing effect was found with the neutral dammarane saponins, while the effects of malonyl-ginsenosides and Ro were remarkably potentiated in the presence of these neutral dammarane saponins. The water-solubility of Sa was also increased in the presence of malonyl-ginsenosides under cooperation with the neutral dammarane saponins.

9202-0834 Zito, S.W., Srivastava, V. , Adebayo-Olojo, E. (Department of Pharmaceutical Sciences, St. John's University, College of Pharmacy and Allied Health Professions, Jamaica, New York 11439, USA) **Incorporation of {1-14C}-isopentenyl pyrophosphate into monoterpenes by a cell-free homogenate prepared from callus cultures of Chrysanthemum cinerariaefolium.** *Planta Medica*, v. 57(5): p. 425-427, 1991 (16 ref, Eng).

Callus culture of *C.cinerariaefolium* initiated with axillary buds from the plant, have been shown to produce chrysanthemyl alcohol and chrysanthemic acid. Incubation of a cell-free homogenate from the callus with {1-14C}-isopentenyl pyrophosphate demonstrated incorporation of radioactivity into chrysanthemyl alcohol and chrysanthemic acid as well as products from isopentenyl pyrophosphate isomerase and prenyltransferase activities.

Pharmacognosy

9202-0835 Chourasia, H.K.(University Department of Botany, Bhagalpur University, Bhagalpur 812007, Bihar, India) **Aflatoxin contamination in drug yielding plants.** *Journal of Indian Botanical Society*, v. 69(3&4): p. 281-283, 1990 (19 ref, Eng).

Of five plant samples used for the preparation of Ashwagandhadi Churna, Saraswat Churna and Shatawaryadi Churna, four were aflatoxin positive. The highest level of Afl-B1 contamination was detected in the roots of *Argyreia speciosa (1.27 micro g/g) and Acorus calamus* (0.47 micro g/g). The sample of *Evolvulus alsinoides* was devoid of natural contaminant. Of the 49 strains of *Aspergillusflavus* isolated from different samples, 22 were toxigenic.

9202-0836 El-Gammal, S.Y.(Historian, PO Box 136, Maddi, Cairo, Egypt) **Folk-traditional antidiabetic herbs.** *Bulletin of the Indian Institute of History of Medicine*, v. 21(1): p. 87-90, 1991 (8 ref, Eng).

Many herbs were found to possess antidiabetic activity and were used in different forms from remote antiquity in folk traditional therapy. Sixty four plants have been identified and listed along with form of intake and different dosage. NSL, New Delhi.

9202-0837 Gastaldo, P., Profumo, P., Caviglia, A.M., Bisio, A. (Istituto Botanico Hanbury, Universita di Genova, Corso Dogali 1/C, 16136 Genova, Italy) **Pharmacognostic study of Aloe arborescens grown in Italy.** *International Journal of Pharmacognosy*, v. 29(3): p. 210-214, 1991 (8 ref, Eng).

Pharmacognostical study was carried out on *A.arborescens* grown in the Hanbury Botanic Garden at La Mortola, Italy. The study reveals that the plant acclimatized in this place maintains the same morphological and biochemical aspects as the species which is considered of pharmacological interest.

9202-0838 Li, P., Xu, G.J., Xu, L.S. , Jin, R.L.(China Pharmaceutical University, Nanjing 210009, China) **Study on the Chinese drug Beimu. IX. Microscopic identification of the upper epidermis of the scales of Fritillaria bulls.** *Acta Pharmaceutica Sinica*, v. 26(6): p. 463-470, 1991 (Chi, Eng).

Beimu, a traditional Chinese drug, has been used as an antitussive and expectorant for a long time and it is derived from a number of species of *Fritillaria*. So it is difficult to identify exactly the botanical origin of the commercial crude drugs by means of macroscopic examination. The microscopic identification of the upper epidermis of the scales of 20 species has been dealt with. The result showed that these species are different from each other in the shape and size of the epidermal cells, the shape, size and arrangement of the cuticular peg. Moreover, it was found that the anticlinal wall of the epidermal cells is not bead- thickened, but cuticular peg formed by cuticle.

9202-0839 Namba, T., Komatsu, K., Iwai, M.(Research Institute for Wakan-Yaku, Toyama Medical and Pharmaceutical University, 2630, Sugitani, Toyama 930-01, Japan) **Pharmacognostical studies on the folk medicines in Japan (VIII) On "Ikarisou-kon".** *Shoyakugaku Zasshi*, v. 45(2): p. 109-118, 1991 (23 ref, Jap, Eng).

The Japanese crude drug "Ikarisou-kon" has been used as a folk remedy for hemiplegia, amnesia, hyposexuality, etc. It is said to be the underground parts of *Epimedium* plants of the family Berberidaceae. Studies for the identification of the botanical origin of "Ikarisou-kon" samples obtained from Kobe, Osaka and Niigata markets were made. Then, the rhizomes of five species and five varieties of the genus *Epimedium*were also studied anatomically. The result showed that the botanical orgin of "Ikarisou-kon" from Kobe and Osaka markets is *E.grandiflorum* var. *thunbergianum* and that from Niigata market is *E.sempervirens* var.*hypoglaucum* produced in Niigata pref..

9202-0840 Namba, T., Ye, J.N., Komatsu, K. , Cai, S.Q., Gu, Z.M., Mikage, M.(Research Institute for Wakan-Yaku, Toyama Medical and Pharmaceutical University, 2630, Sugitani, Toyama 930-01, Japan) **Pharmacognostical studies on the folk medicine in Sichuan Province in China(IV) On "Ye-cai-zi".** *Shoyakugaku Zasshi*, v. 45(2): p. 119-127, 1991 (13 ref, Eng).

"Ye-cai-zi" is one of the Chinese folk medicines in Sichuan Province. for jaundice, bronchitis, etc. It is said to be the whole plant of *Rorippa montana* of Cruciferae. However, the scientific name was reported as a synonym of *R.indica* and *R.dubia*. "Ye-cai-zi" of different origins are available in the market. In order to identify the botanical origin of the drug, comparative anatomical studies were made on the cauline leaves and stems of *R.indica, R.dubia, R.cantoniensis, R.islandica, R.globosa, R.liaotungensis, R.barbareifolia, R.elata* and *R.nikkoensis*. As the result, *R.dubia* and *R.indica* were determined as the botanical identity of "Ye-cai-zi".

9202-0841 Namba, T., Komatsu, K., Liu, Y.P. , Mikage, M.(Research Institute for Wakan-Yaku, Toyama Medical and Pharmaceutical University, Sugitani, Toyama 930-01, Japan) **Pharmacognostical studies on the Polygonatum plants (Part I). On the Tibetan crude drug "Ra-mNye".** *Shoyakugaku Zasshi*, v. 45(2): p. 99-108, 1991 (17 ref, Jap, Eng).

"Ra-mNye" is traditional Tibetan medicine, used for the treatment of emaciation, senility, poor appetite, lung trouble, etc. and is said to be derived from the rhizomes of some *Polygonatum* plants of the family Liliaceae. According to the survey, in the markets of Nepal, "Ra-mNye," and two other crude drugs called "Ra-Mo-Shag" and "Lug-Mo-Shag," all derived from *Polygonatum* species, were available. "Ra-mNye" and the two related drugs were anatomically studied to identify their botanical origins, by comparing them with the rhizomes of *P.verticillatum, P.cirrhifolium, P.curvistylum, P.singalilense, P.oppositifolium, P.punctatum* and *P.hookeri*, growing wild in the Himalaya regions. The result showed that the botanical identity of "Ra-mNye" and the two drugs was *P.verticillatum*.

9202-0842 Noro, Y., Hisata, Y., Okuda, K. , Kawamura, T., Kasahara, Y., Tanaka, T. , Sakai, E., Nisibe, S., Sasahara, M.(Faculty of Pharmacy, Meijo University, 15, Yagotourayama, Tenpaku-ku, Nagoya 468, Japan) **Pharmacognostical studies of Plantaginis herba (VII). On the phenylethanoid contents of Plantago spp..** *Shoyakugaku Zasshi*, v. 45(1): p. 24-28, 1991 (9 ref, Jap, Eng).

For the standardization of the quality evaluation of Plantaginis Herba, 7 species of *Plantago* and 9 samples of Plantaginis Herba on the market were quantitatively

analyzed for their phenylethanoid glycoside contents. It was found that they might be roughly divided into two groups, i.e. one mainly containing plantamajoside and the other containing acteoside. The species having fibrous roots, i.e. *P.asiatica*, *P.asiatica* f. *paniculata*, *P.major*, *P.japonica* and *P.hostifolia* belonged to the former group, and the species having tap roots, i.e. *P.camtschatica*, *P.depressa*, *P.lanceolata* and P.virginica belonged to the latter group. In each species, the amounts of these compounds contained (percent) were larger in the young leaves and young spikes. *P.asiatica* collected in Japan contained scarcely any acteoside, though it was occasionally detected in the commercially obtained samples of *P.asiatica* and *P.hostifolia*.

9202-0843 Saxena, R.B., Jain, G.K.(Drug Standardisation Research Project CCRAS, Dhanwanthari Mandir, Jamnagar, 361008, Gujarat, India) **Tila taila- a review.** *Aryavaidyan*, v. 5(1): p. 27-35, 1991 (16 ref, Eng).

Tila taila is being used from remote antiquity in Ayurvedic medicine as 'Sneha dravya', internally as well as externally. Various medicinal uses of the tila taila has been tabulated. Also, physico-chemical characteristics, ancient history, fatty acids, physical constants of the taila, reproctive index, detection of taila etc. has been dealt with. NSL, New Delhi.

9202-0844 Seetha Devi, B., Nair, C.R.S. , Panicker, P.V.*(College of Pharmaceutical Sciences, Medical College, Thiruvananthapuram 695 001, Kerala, India) **Pharmacognostical and pharmacological studies on the root of Ixora coccinea Linn. (Rubiaceae).** *Indian Journal of Pharmaceutical Sciences*, v. 53(3): p. 92-93, 1991 (5 ref, Eng).

The root of *I.coccinea* was studied to fix the parameters for pharmacognostical standards. The total petroleum ether (40-60 degree) extract was pharmacologically evaluated and proved to have antiinflammatory activity comparable to indomethacin. The drug upto a dose of 1.5 g/kg body weight in mice did not show any toxic effect.

9202-0845 Siddiqi, T.O., Ahmad, J., Khan, S.U., Javed, K., Khan, M.S.Y.(Department of Pharmacognosy and Medicinal Chemistry, Institute of History of Medicine and Medical Research, Hamdard Nagar, New Delhi 110062, India) **Pharmacognostical studies of the flowers of Solanum sisymbrifolium Lamk..** *Philippine Journal of Science*, v. 119(1): p. 41-43 , 1990 (8 ref, Eng).

A detailed morphological study of the flowers, their chemical analysis, florescence studies, water and alcohol soluble matter, ash analysis, etc. has been made. Pharmacognostical and phytochemical standards of the drugs are presented to help in the identification of the genuine sample.

9202-0846 Stahl-Biskup, E., Wichtmann, E.M.(Lehrstuhl fur Pharmakognosie der Universitat Hamburg, Bundesstrasse 43, D-2000 Hamburg 13, FRG) **Composition of the essential oils from roots of some Apiaceae in relation to the development of their oil duct systems.** *Flavour and Fragrance Journal*, v. 6(4): p. 249-255 , 1991 (9 ref, Eng).

In the roots of Apiaceae seedlings, the essential oils are accumulated in triangular primary oil ducts between the pericycle cells. In a later stage, when the roots increase in diameter, secondary oil ducts continually develop in the cortex near the cambium, thereafter moving outwards. In different stages of development after germination, the composition of the essential oils from the roots of caraway *Carum carvi* fennel *Foeniculum vulgare* ssp.*capillaceum* var.*azoricum*, parsnip, *Pastinaca sativa* ssp.*sativa* var.*hortensis*, and lovage, *Levisticum officinale* was analysed parallel to microscopical observation of the roots. Compared with the 'adult' oils, the essential oils of the seedlings consist of large amounts of sesquiterpene hydrocarbons, and only small changes occur until the beginning of the secondary thickening. Just when the secondary oil ducts appear, the oil content in the roots increases remarkably, accompanied by rapid changes in the oil composition into that of the 'adult' oils. Only *L.officinale* did not fit into this pattern. The phthalides, characteristic compounds of the adult oils of this species, are found in considerable amounts only after many secondary oil ducts have been developed.

9202-0847 Tipnis, H.P., Kulkarni, S.R.(Department of Pharmaceutical Chemistry, The Bombay College of Pharmacy, Kalina, Bombay 400 098, Maharashtra, India) **Studies in microbial decontamination of some crude drugs by gamma radiation-Part IV..** *Indian Drugs*, v. 29(1): p. 27-32, 1991 (4 ref, Eng).

A dose of 10 KGY gamma radiation was found to completely decontaminate samples of cardamom (*Elettaria cardamomum*) var *miniscula* and kuth (*Saussurea lappa*), whereas sample of chamomile (*Matricaria chamomilla*) required 15 KGY dose for complete decontamination. Gamma radiation did not affect the organoleptic properties and finger print patterns of volatile oils at doses required for complete decontamination.

9202-0848 Unnikrishnan, P.(Vidyratnam PSV Ayurveda College Post, Edarikode 676501, Via Kottakkal, Kerala, India) **Excerpts from Chikitsamanjani-II.** *Aryavaidyan*, v. 5(1): p. 47-51, 1991 (Eng).

Several preparations from crude plant sources for remedial measures for controlling fever, jaundice, sannipata fevers, disease of vata, has been described. NSL, New Delhi.

9201-0849 Wang, X., Hattori, M., Toriizuka, K., Terasawa, K., Lou, Z., Namba, T.*(Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Pharmacognostical studies on Chinese crude drug Da-huang(Rhubarb)(V). Effect of aqueous extracts of Rheum species on human platelet aggregation.** *Shoyakugaku Zasshi*, v. 45(1): p. 57-61, 1991 (14 ref, Jap, Eng).

For the purpose of establishing a method for evaluating the quality of *Rheum* plants and also of finding their new medicinal uses, the effect of aqueous extracts from rhizomes of eleven different species of the genus *Rheum* on the human platelet aggregation induced by collagen in vitro was studied. Of the extracts examined, an extract of *R.tanguticum* had the most potent inhibitory action on the aggregation with an IC50=0.68+-0.20 mg/ml and those of *R.hotaoense*, *R.lhasaense* and *R.alexandrae* also showed a potent inhibitory activity. These extracts contained relatively high amounts of tannins, but no definite correlation was observed between the inhibitory activity on platelet aggregation and the tannin content.

9202-0850 Zhao, Z., Hu, M., Sashida, Y.* , Tang, X.(Tokyo College of Pharmacy, 1432-1, Horinouchi, Hachioji, Tokyo 192-03, Japan) **Pharmacognostical studies on the Magnolia bark(3). Determination of magnolol and honokiol in "Hou po" (cortex Magnoliae) prepared from the bark of different age.** *Shoyakugaku Zasshi*, v. 45(2): p. 145-147, 1991 (8 ref, Eng).

To determine the amounts of Magnoiol (I) and honokiol(II), the barks of different age were collected from a single tree of *M.officinalis* and analyzed for their contents by TLC. The 20-30 year old barks contain relatively large amounts of I and II, which suggests that 20-30 year old barks are the most suitable for the preparation of Hou po (Cortex Magnoliae).

9202-0851 Zheng, T., Tanaka, T.*, Sakai, E. , Tingguo, K.(Gifu Pharmaceutical University, 5-6-1, Mitahora-higashi, Gifu 502, Japan) **Pharmacognostical studies of Plantaginis herba (8). Morphological and histological studies on the roots of Plantago spp. from China.** *Shoyakugaku Zasshi*, v. 45(2): p. 93-98, 1991 (8 ref, Jap, Eng).

The roots of 17 plants of the *Plantago* genus from China, i.e. *P.asiatica*, *P.hostifolia*, *P.major*, *P.jehohlensis*, *P.himalaica*, *P.erosa*, *P.depressa*, *P.depressa* var.*montana*, *P.camtschatica*, *P.maritima* var.*salsa*, *P.virginica*, *P.lessingii*, *P.minuta*, *P.lanceolata*, *P.media*, *P.aristata*, *P.indica* were studied histotaxonomically. All these species were distinguishable from each other histologically on the basis of characters like, the structures of the pith and cork-layer, and the presence or absence of the endodermal cells having some daughter cells. These results will be useful for the identification of the species of *Plantago* genus.

Clinical Studies

9202-0852 Acciai, M.C., Brusi, C. , Francalanci, S., Gola, M., Sertoli, A.(Istituto di Clinica Dermosifilopatica dell'-Universita, 37 Via degli Alfani, 50121 Firenze, Italy) **Skin tests with fresh foods.** *Contact Dermatitis*, v. 24(1): p. 67-68, 1991 (7 ref, Eng).

Cases of urticaria and anaphylactic reactions to the ingestion of certain vegetables such as chickpea, pea, bean, soya beans, peanut, lentils, tomato, banana, etc. have been reported.

9202-0853 Angelini, G., Vena, G.A., Filotico, R., Foti, C., Grandolfo, M.(Department of Dermatology, University of Bari, Policlinico, Piazza Giuliocesare 70100, Bari, Italy) **Allergic contact dermatitis from (Capparis spinosa L.) applied as wet compresses.** *Contact Dermatitis*, v. 24(5): p. 382-383, 1991 (15 ref, Eng).

A house wife applied wet compresses obtained by mining leaves and fruits of *C.spinosa* to her elbow for epicondylitis. She developed acute vesiculopullons dermatitis. She was patch tested for *C.spinosa* leaf and fruit (asis),petroleum allylisothiocyanate and showed positive results. The high concentration of isothiocyanate in the compress solution led to irritancy and dermatites.

9202-0854 Baskaran, K., Ahamath, B.K. , Shanmugasundaram, K.R.*, Shanmugasundaram, E.R.B.(Department of Biochemistry, Postgraduate Institute of Basic Medical Sciences, Madras 600 113, TN, India) **Antidiabetic effect of a leaf extract from Gymnema sylvestre in non-insulin-dependent diabetes mellitus patients.** *Journal of Ethnopharmacology*, v. 30(3): p. 295-305 , 1990 (29 ref, Eng).

GS4, an extract from the leaves of *G.sylvestre* was administered (400 mg/day) for 18-20 months as a supplement to the conventional oral drugs. During GS4 supplementation, the patients showed a significant reduction in blood glucose, glycosylated haemoglobin and glycosylated plasma proteins, and conventional drug dosage could be decreased. Five of the 22 type 2 diabetic patients were able to discontinue their conventional drug and main-

tain their blood glucose homeostasis with GS4 alone. NML, New Delhi.

9202-0855 Belaiche, P., Lievoux, O.(Department de Phytotherapie-oligoelements, Faculte de Medicine de Bobigny, Paris Nord, Paris, France) **Clinical studies on the palliative treatment of prostatic adenoma with extract of Urtica root.** *Phytotherapy Research*, v. 5(6): p. 267-269, 1991 (3 ref, Eng).

The effects of fluid of roots of *U.dioica* and *U. urens* on 67 men of over 60 years of age, suffering from prostatic adenoma, were studied. Functional symptoms such as nocturia were alleviated, particularly in less severe cases, and no untoward effects were observed.

9202-0856 Cameli, N., Vassilopoulou, A. , Vincenzi, C.(Department of Dermatology, University of Bologna, Via Massarenti 1, 40138 Bologna, Italy) **Contact allergy to colophony in a wart remover.** *Contact Dermatitis*, v. 24(4): p. 315-316, 1991 (2 ref, Eng).

Colophony (rosin) has a complex chemical composition, consisting of 90 percent resin acids, mostly abietic acid, and 10 percent neutral matter. Calophony, obtained from *Pinus palustris* and *P.caribaea* is present in a number of household products. Case of a 26-year-old man with erythematous lesions on hands was reported. Patch tests showed him to be positive to calophony.

9202-0857 Chittra, K.V., Bhaskaran, T.(Avinashilingam Institute for Home Science and Higher Education for Women, Deemed University, Coimbatore 43, TN. India) **Glycemic response of diabetics to selected cereals administered in different forms.** *Indian Journal of Nutrition and Dietetics*, v. 26(5): p. 122-, 1989 (Recd. 1991, 6 ref, Eng).

The fasting and postprandial blood glucose level after the consumption of five test meals (rice, idiappam, brokee wheat cooked, chapaties and ragi adai) in insulin dependent diabetics, non-insulin dependent diabetics and in normal healthy subjects has been investigated. Factors like food form, dietary fibre and the nature of the carbohydrate have a marked influence on postprandial glycemia. Different glycemic responses were observed even when a single food was prepared in different ways. The asumption that isocaloric diets with similar carbohydrate, protein and fat composition but derived from a variety of different foods have similar effects on blood glucose, is incorrect, and the usage of the cereal exchange lists may be misleading.

9202-0858 Fischer, T.(National Institute of Occupational Health, 17184 Solana, Sweden) **Bougainvillaea contact dermatitis.** *Contact Dermatitis*, v. 24(5): p. 376, 1991 (2 ref, Eng).

A 49-year old woman reported an immediate local urticarial reaction after tending bougainvillaea flowers. She also experienced some shortness of breath. Scratch tests with crushed leaves and flowers gave positive reaction.

9202-0859 Gamiboa, P.M., Jauregui, I. , Gonzalez, G., Fernandez, J.C., Antepara, I.(Hospital Civil de Basurto, Seccion de Alergologia, Avda, Montevideo 18, 48013 Bilbao, Spain) **Allergic contact dermatitis from tali (missanda) wood (Erythrophleum guianense).** *Contact Dermatitis*, v. 24(4): p. 309, 1991 (3 ref, Eng).

A case of a 30 year-old male with contact dermatitis on face and upper limbs due to contact with tali wood. Patch test with tali extract was positive.

9202-0860 Goncalo, S., Gil, J., Goncalo, M. , Poiares Baptista, A. (Clinica de Dermatologia, Hospitais da Universidade de Coimbra, 3000 Coimbra, Portugal) **Pigmented photoallergic contact dermatitis from musk ambrette.** *Contact Dermatitis*, v. 24(3): p. 229-231, 1991 (12 ref, Eng).

Case of a 52-year old man contacting photoallergic dermatitis and pigmentation from after shave lotion containing musk ambrette, has been reported. Patch tests confirmed this. Pigmentation is considered a secondary manifestation of photoallergic contact dermatitis.

9202-0861 Hausen, B.M., Breuer, J., Weglewski, J., Rucker, G. (Department of Dermatology, University Hospital, Martimistrasse 52, D-2000, Hamburg 20, F.R.G.) **alpha-Peroxyachifolid and other new sensitizing sesquiterpene lactones from yarrow (Achillea millefolium L., Compositae).** *Contact Dermatitis*, v. 24(4): p. 274-280, 1991 (43 ref, Eng).

A reinvestigatin of the ether extract of yarrow revealed the presence of 5 unsaturated hitherto unknown guainolides of peroxidecharacter. The main SL, identified as a strong sensitizer in guinea pig sensitization experiments was named alpha-peroxy achifolid. The minor SL also contribute margnally to the sensitizing capacity, while other yarrow constituents like dehydromatricaria ester and pontica epoxide appear to play no role. A fallow-up of Compositae sensitive patients showed that more than 50 percent reacted when tested with yarrow extract.

9202-0862 Jemec, G.B.E., Hausen, B.M.(Department of Dermatology, Gentofte Hospital, University of Copenhagen, Niels Andersens Vej 65, DK 2900 Hellerup, Denmark) **Contact dermatitis from Brazilian box tree**

wood (Aspidosperma sp.). *Contact Dermatitis*, v. 25(1): p. 58-60, 1991 (5 ref, Eng).

Prolong contact with the wood of certain *Aspidosperma* species has been found to cause contact dermatitis. The report suggests that the species are not only irritant but also have significant sensitizing capacity.

9202-0863 Karnick, C.R.(Clinical and Experimental Ayurvedic Research Division, Wockhardt Limited, Aurangabad, Maharastra, India) **A clinical trial of a composite herbal drugs in the treatment of diabetes mellitus (Madhumeha).** *Aryavaidyan*, v. 5(1): p. 36-46, 1991 (52 ref, Eng).

Twenty patients of various age groups attending OPD were administered with Ayurvedic capsules 450 mg per day, which contained the following herbs viz., *Coccinia indica, Cuminum cyminum, Eugenia jambolana, Gymnema sylvestre, Momordica charantia, Phyllanthus niruri, Swertia chirata* and *Tephrosia purpurea*. Results show that the capsules can be used without any side effects and significant improvement were noticed in the madhumeha patients. NSL, New Delhi.

9202-0864 Kawai, K., Nakagawa, M., Kawai, K. , Liew, F.M., Yasuno, H.(Kawai Medical Laboratory for Cutaneous Health, 60 Minaminishino-cho Nishinanajo Shimagyo-ku Kyoto 600, Japan) **Hyposensitization to urushiol among Japanese lacquer craftsmen: Results of patch tests on students learning the art of lacquerware.** *Contact Dermatitis*, v. 25(5): p. 290-295, 1991 (14 ref, Eng).

Lacquer is made from the sap of Japanese lacquer tree (*Rhus verniciflua*), and raw lacquer is composed of 60-65 percent urushiol and its oligoine. Urushiol patch tests were performed on subjects learning the art of lacquerware before and after contact with lacquer. It was confirmed that Japanese lacquer craftsmen developed hyposensitization to urushiol after prolonged exposure to lacquer.

9202-0865 Lee, T.Y., Lam, T.H.(No. 23A, Soares Avenue, Homantin, Kowloon, Hong Kong) **Contact dermatitis due to topical treatment with garlic in Hong Kong.** *Contact Dermatitis*, v. 24(3): p. 193-196, 1991 (8 ref, Eng).

Eight patients developed contact dermatitis after rubbing the cut end of a fresh garlic (*Allium sativum*) bulb onto the skin to treat fungal and other infections at the groin, neck, lower limb, hand or face. The distribution and morphology of the lesions was different from the classical form as described in the literature. Repeated open application tests with fresh garlic were all positive and patch tests with garlic extract were all negative. 5 controls tested by repeated open application with fresh garlic juice were also positive and patch tests in 10 controls with garlic extract were also negative. The results confirmed that the contact dermatitis was due to irritation. The patients were treated successfully with topical fluorinated steroid. For prevention, the practice of direct application of fresh garlic onto the skin for treating infections should be discouraged.

9202-0866 Lee, T.Y., Lam, T.H.(No 23A, Soares Avenue, Homantin, Kowloon, Hong Kong) **Contact dermatitis due to a Chinese herbal orthopaedic tincture, Zheng Gu Shui.** *Contact Dermatitis*, v. 24(1): p. 64-65, 1991 (1 ref, Eng).

Four patients developed contact dermatitis after using Zheng Gu Shui (ZGS) for sprains. The Chinese herbal ZGS is reported to contain *Croton tiglium, Cinnamomum camphora, Moghania macrophylla, Inula cappa*, Radix Angelicae, Radix Psuedoginseng, menthol and camphor. Patch tests with ZGS showed positive reactions.

9202-0867 Lee, T.Y., Lam, T.H.*(Department of Community Medicine, University of Hongkong, Hongkong) **Bone-setter's herbs dermatitis in Hongkong.** *Contact Dermatitis*, v. 24(4): p. 304-306, 1991 (2 ref, Eng).

Twenty patients who developed eczema at the precise site of application of herbs by bone-setters are reported. Bone-setter's herbs (BSH) are prepared from more them 20 different herbs. The ingredents of BSH were not disclosed by the bone setters and hence the allergens could not be identified.

9202-0868 Lembo, G., Balato, N., Patruno, C. , Auricchio, L., Ayala, F.(Clinica Dermatologica, II Facolta di Medicina e Chirurgia, Universita Federico II, via S. Pansini 5, 80131, Napoli, Italy) **Allergic contact dermatitis due to garlic (Allium sativum).** *Contact Dermatitis*, v. 25(5): p. 330-331, 1991 (7 ref, Eng).

Patch tests were performed on 155 subjects, variously with garlic powder, diallyldisulphide, petroleum, ethanol and aqueous extracts of garlic. The results indicate that contact sensitization to garlic, is of common occurrence and diallyldisulphide is the sensitizer contained in garlic.

9202-0869 Lutomski, J., Mrozikiewicz, A.(Institut fur Heilpflanzenforschung, Libelta 27, 61-707 Poznan, Polen) **Antiatherosclerotic activity of Graf's Knoblauch-Hausmittel preparation in clinical trials.** *Herba Polonica*, v. 35(4): p. 193-200, 1989 (Recd. 1991, 16 ref, Pol, Eng).

Fifty patients showing symptoms of progressive atherosclerosis and moderate hypertension were administered a dose of two teaspoonfuls of garlic preparation (*Allium sativum*)-Graf's Knoblauch-Hausmittel twice a day during a 3-month observation period. The effects were found to be: considerable decrease in moderate hyperten-

sion and slow disappearance of atherosclerotic symptoms, particularly headaches and disturbances of sleep. As for the biochemical parameters positive observations concerning normalization of lipid metabolism and blood clotting time which are the risk factors for coronary disease, were observed.

9202-0870 Maluf, E., Barros, H.M.T. , Frochtengarten, M.L., Benti, R., Leite, J.R.*(Department of Psychobiology, Escola Paulista de Medicina, 862 Rua Botucatu, 04023 Sao Paulo, Brasil) **Assessment of the hypnotic/sedative effects and toxicity of Passiflora edulis aqueous extract in rodents and humans.** *Phytotherapy Research*, v. 5(6): p. 262-266, 1991 (18 ref, Eng).

Hypnotic-sedative effects and toxicity of *P.edulis* were assessed in rats and mice and in healthy volunteers. It was verified that some samples of *P.edulis* had a nonspecific central nervous system depressant effect. Furthermore, hepatobiliary and pancreatic toxicity to animals and humans were detected.

9202-0871 Marshman, G., Lovell, C.R.(Department of Dermatology, Royal United Hospital, Combe Park, Bath BA1 3NG, UK) **Contact urticaria from runner bean (Phaseolus multiflorus).** *Contact Dermatitis*, v. 24(1): p. 76, 1991 (2 ref, Eng).

Case of a rapidly evolving pruritic eruption on the inner fore arm, which developed within hours of picking runner beans has been reported.

9202-0872 McGeorge, B.C.L., Steele, M.C.(Department of Dermatology, Dryburn Hospital, North Road, Durham DH1 4NE, England) **Allergic contact dermatitis of the nipple from Roman chamomile ointment.** *Contact Dermatitis*, v. 24(2): p. 139-140, 1991 (2 ref, Eng).

Two breastfeeding women used Kamillosan ointment (containing Roman chamomile i.e. *Chamaemelum nobile* for cracked nipples, are reported to have developed eczema. Patch test showed 3+reaction to chamomile oil and ointment.

9202-0873 Merrick, C., Fenney, J., Clarke, E.C., Hodnett, T., Fletcher, G.(Employment Nursing Advisory Service, Health and Safety Executive, Sovereign House, 40 Silver Street, Sheffield SS1 2ES, Denton Employment Rehabilitation Centre, Windmill Lane, Denton, Manchester M34 3GS, UK) **A survey of skin problems in floristry.** *Contact Dermatitis*, v. 24(4): p. 306, 1991 (2 ref, Eng).

Out of 164 florists interviewed in this study, 46 percent had rashes at some time in their employment and 84 percent of these thought they knew the cause(s). Most commonly suspected was the sap from daffodil stmes, followed by primula. Other plants responsible for skin problems have been identified as Christmas tree, *Cupressus*, haycinth bulbs, lilies, statice, rose thorns, *Dieffenbachia*, *Eucalyptus*, tulips, Chrysanthemum, sweet william, *Grevillea*, *Ruscus*, *Gerbera*, carnations, *Gypsophila*, *Gloxinia*, broom, *Mimosa*, stocks and *Euphorbia*.

9202-0874 Oliwiecki, S., Beck, M.H., Hausen, B.M.(The Skin Hospital, Chapel Street, Salford, Manchester, M60 9EP, UK) **Compositae dermatitis aggravated by eating lettuce.** *Contact Dermatitis*, v. 24(4): p. 318-319, 1991 (7 ref, Eng).

Patients with allergic contact dermatitis due to Compositae often react to a number of different sesquiterpene lactones which can include those in lettuce. Their symptoms can then persist or be worsened by eating lettuce or other composite plants.

9202-0875 Rudzki, E., Berova, N. , Czernielewski, A., Grzywa, Z., Hegyi, E. , Jirasek, J., Kalensky, J., Michailov, P. , Nebenfuhrer, L., Rothe, A., Schubert, H. , Stransky, L., Szarmach, H., Temesvari, E. , Ziegler, V. (Klinika Dermatologiczna 02-008, Warszawa, ul.Koszykowa 82a,Poland) **Contact allergy to oil of turpentine: A 10-year retrospective view.** *Contact Dermatitis*, v. 24(4): p. 317-318, 1991 (3 ref, Eng).

Sources of sensitivity to turpentine vary in various countries. It appears that alpha-pinene is a more important allergen than delta-3-carene.

9202-0876 Schilcher, H., Schulz, V.(Institute of Pharmaceutical Biology, Berlin, Germany) **Garlic recognized as an effective medicinal product ? International symposium on Allium sativum.** *British Journal of Phytotherapy*, v. 2(1): p. 21-24 , 1991 (5 ref, Eng).

Highlights of papers presented at the 2nd International Garlic Symposium held at Berlin from March 7 to 10, 1991, have been summarised. The results of studies on the efficacy of garlic (*A.sativum*) in patients showed that the empirical knowledge of past centuries can be verified by modern methods in traditional medicine. Emphasis was given on standardization of garlic products.

9202-0877 Shankar, A.(RA Hospital and Research Center, Warisaliganj, Nawada, Gujarat, India) **(Vitanite), Vitatone in varied sex disorder.** *Current Medical Practice*, v. 35(11): p. 287-292, 1991 (3 ref, Eng).

Male sex factor plays an important role in contributing to infertility. Vitatone, an indigenous drug, at the dose level of 10ml (three times a day) for 90 days appear to extend spermatogenesis cycle. Over 75-82 days period, the drug acted as general tonic, improving immunity and an-

tibacterial activity. Also, acting on seminal fluid synthesis, improved azoospermia (in 5 months) and necrozospermia (in 3 months). Patients complaining hasty and premature ejaculation improved with in 30 days to 90 days period. Vitatone appear to improve sperm action and alleviate psycho-somatic problems. No side effect was reported. NSL, New Delhi.

9202-0878 Shanmugasundaram, E.R.B., Rajeswari, G., Baskaran, K., Rajesh Kumar, B.R.* , Shanmugasundaram, K.R., Ahmath, B.K.(Department of Biochemistry, Postgraduate Institute of Basic Sciences, University of Madras, Taramani Campus, Madras 600113,TN,India) **Use of Gymnema sylvestre leaf extract in the control of blood glucose in insulin-dependent diabetes mellitus.** *Journal of Ethnopharmacology*, v. 30(3): p. 281-294 , 1990 (29 ref, Eng).

GS4 a water-soluble extract of the leavesof *G.sylvestre* was administered (400 mg/day) to 27 patients with insulin-dependent diabetes mellitus (IDDM) on insulin therapy. Insulin requirements came down together with fasting blood glucose and glycosylated haemoglobin (HbA1c) and glycosylated plasma protein levels. While serum lipids returned to near normal levels with GS4 therapy, glycosylated haemoglobin and glycosylated plasma protein levels remained higher than controls. IDDM patients on insulin therapy only showed no significant reduction in serum lipids, HbA1c or glycosylated plasma proteins when followed up after 10-12 months, GS4 therapy appears to enhance endogenous insulin, possibly by regeneration/revitalisation of the residual beta cells in insulin-dependent diabetes mellitus. NML, New Delhi.

9202-0879 Urushibata, O., Kase, K.(Department of Dermatology, Ohashi Hospital, Toho University School of Medicine, 2-17-6 Ohashi, Meguro, Tokyo 153, Japan) **Irritant contact dermatitis from Euphorbia marginata.** *Contact Dermatitis*, v. 24(2): p. 155-156, 1991 (8 ref, Eng).

A woman who taught flower arrangement using *E.marginata*, developed itchy eruptions on her face and fingers. The eruptions healed with topical cortico steroid therapy. Patch tests with leaves (asis) milky latex (asis, 50 percent and 25 percent aqueous) of *E.marginata* were performed. At 2 days, positive reaction was shown to milky latex (asis), while the tests with leaves (asis), milky latex 50 percent and 25 percent aqueous were negative.

9202-0880 Vilaplana, J., Grimalt, F. , Romaguera, C., Conellana, F.(Allergy Department of Dermatology, University and Hospital Clinic of Barcelona, c/Casanova 143, Barcelona, Spain) **Contact dermatitis from eugenol in mouthwash.** *Contact Dermatitis*, v. 24(3): p. 223-224, 1991 (6 ref, Eng).

Case of a 52-year old woman getting inflammation in the mouth after using Vectoriden mouthwash (containing eugenol, menthol, ethyl alcohol etc.), has been reported. Patch test confirmed positive reaction with eugenol.

9202-0881 Vilaplana, J., Romaguera, C. , Grimalt, F.(Allergy Department, University and Hospital Clinic of Barcelona, C/Cs Sanova 143, Barcelona, Spain) **Contact dermatitis from geraniol in Bulgarian rose oil.** *Contact Dermatitis*, v. 24(4): p. 301, 1991 (7 ref, Eng).

Of the 326 patients with suspected contact dermatitis from perfumes patch tested with the chemotechnique fragrance series, one positive to Bulgarian rose oil (BRO) was seen. The major components of BRO being citronellol and geraniol (20 percent), which explains positivity to geraniol in BRO.

9202-0882 Warm, J.S., Dember, W.N. , Parasuraman, R.(Ms Annette Green, Fragrance Research Fund Ltd., 142 East 30th Street, New York, NY 10016, USA) **Effects of fragrances on vigilance performance and stress.** *Perfumer & Flavorist*, v. 15(1): p. 15-18, 1990 (Recd. 1992, 5 ref, Eng).

Behavioral effects of certain fragrances believed to be having an inherent ability to affect peoples' level of physiological arousal independently of their hedonic properties, have been investigated. The data showed that both peppermint and muguet were associated with superior overall performance accuracy, relative to the plain air control condition. Improved performance is attributable to increased sensitivity to signals rather than to response bias. Stress or perceived work load were not affected by fragrance.

Pharmacology & Toxicology

9202-0883 Abd El Hafiz, M.A., Ramadan, M.A. , Jung, M.L., Beck, J.P., Anton, R.(Pharmacognosy Department, Faculty of Pharmacy, Assiut University, Assiut, Egypt) **Cytotoxic activity of Amaryllidaceae alkaloids from Crinum augustum and Crinum bulbispermum.** *Planta Medica*, v. 57(5): p. 437-439, 1991 (17 ref, Eng).

The cytotoxic activity of five minor Amaryllidaceae alkaloids and one flavan isolated from *C.augustum* and *C.bulbispermum* were tested on human leukemic Molt 4 cells. Whereas the crinine-type alkaloids (6alpha-hydroxycrinine, powelline) and the new type augustamine did not even inhibit the growth of Molt 4 cells, the lycorine-type alkaloid (pratorinine) and the crinine-type alkaloid (6alpha-hydroxybuphanisine) showed a moderate cytotoxic activity and the flavan (4'-hydroxy-7-methoxyflavan) showed an important cytotoxic effect.

9202-0884 Al-Bayati, Z.A.F., Alwan, A.H.(Pharmacognosy and Pharmacology Department, Biological Research Centre, Scientific Research Council, Jadiriyah, PO Box 2371, Baghdad, Iraq) **Effect of fig latex on lipid peroxidation and CCl4-induced lipid peroxidation in rat liver.** *Journal of Ethnopharmacology*, v. 30(2): p. 215-221 , 1990 (20 ref, Eng).

Oral administration of *Ficus carica* latex to female rats had no effect, while i.p. administration produced a significant increase in hepatic lipid peroxidation. When the latex was given before CCl4 treatment; it produced no protective effect against CCl4-induced hepatotoxicity. Addition of the latex to the incubation mixture produced a dose-dependent increase in lipid autoxidation, while the chloroform and ether extracts of the latex, as well as heated latex, had no effect on hepatic lipid autoxidation. NML, New Delhi.

9202-0885 Al-Bekairi, A.M., Abdulaban, F.S. , Qureshi, S., Shah, A.H.(Quality Control and Research Laboratory, Experimental Animal Care Centre, Research Centre and Department of Biochemistry, College of Pharmacy, King Saud University, PO Box 2457, Riyadh 11451, Saudi Arabia) **The toxicity of Catha edulis (Khat). A review.** *Fitoterapia*, v. 62(4): p. 291-300, 1991 (116 ref, Eng).

The toxicity of *C.edulis* (Khat), classified as substance of abuse by World Health Organization and customarily used in East Africa and Southern Arabia for its stimulant effects, has been reviewed.

9202-0886 Al-Bekairi, A.M., Qureshi, S., Shah, A.H.(Quality Control and Research Laboratory, Experimental Animal Care Centre, College of Pharmacy, PO Box 2457, Riyadh 11451, Saudi Arabia) **Toxicity studies on Allium cepa, its effect on estradiol treated mice and on epididymal spermatozoa.** *Fitoterapia*, v. 62(4): p. 301-306, 1991 (43 ref, Eng).

A.cepa (onion) aqueous extract was given to mice for three months at a dose of 100 mg/kg in the drinking water. A significant increase in the weight of testes and epididymes of the treated animals was observed. The sperm count was significant higher supporting an aphrodisiac potential of *A.cepa*. No gain in body weight, reduction in liver weight and a decrease in RBC level were noticed. *A.cepa* failed to show an estrogenic or antiestrogenic activity in mice and was devoid of spermatotoxic potential.

9202-0887 Alam, M., Susan, T., Joy, S. , Kundu, A.B.(Captain Srinivasa Murti Drug Research Institute for Ayurveda, Madras 600106, TN, India) **Antiinflammatory and antipyretic activity of vicolides of Vicoa indica DC.** *Indian Journal of Experimental Biology*, v. 30(1): p. 38- 41, 1991 (34 ref, Eng).

Vicolides A,B,C and D, the sesquiterpene lactones isolated from *V.indica* exhibited antiinflammatory activity against cotton pellet granuloma in rats at dose level of 10 mg/kg body weight, sc. Highly significant activity was observed with vincolides C and D. They reduced the protein content, acid and alkaline phosphatase, glutamate-pyruvate transaminase and glutamate oxaloacetate transaminase activities in liver and serum. Significant reduction in ascorbic acid content in adrenals was also observed in treated animals. The highly significant antiinflammatory activity of vicolides C and D can be attributed to their chemical structures. Vicolide D has an epoxy angeloyl group while vicolide C has 3,4 epoxy group and an ester moiety in the molecule. Vicolide D possesses antipyretic activity at 250 mg/kg body weight, po dose. It may be due to the presence of epoxy angeloyl group in the molecule.

9202-0888 Aqel, M., Hadidi, M.(Faculty of Medicine, University of Jordan, Amman, Jordan) **Direct relaxant effect of Peganum harmala seed extract on smooth muscles of rabbit and guinea pig.** *International Journal of Pharmacognosy*, v. 29(3): p. 176-182, 1991 (31 ref, Eng).

The effects of an queous extract of *P.harmala* seeds on the smooth muscles of rabbit and guinea pig were tested in vitro using isolated segments of intestine trachea and aorta. The extract inhibited the spontaneous movement of the rabbit jejunum and guinea pig ileum and the contractions of rabbit jejunum and guinea pig ileum induced by 10-4M acetylcholine stimulation, The extract also inhibited the contractions of rabit tracheal smooth muscle induced by 10-4 acetylcholine stimulation and the contractions of guinea pig tracheal smooth muscle induced by 10-4M histamine stimulation.Furthermore, the extract inhibited the contractions of rabbit and guinea pig aortae induced by 10-4M norepinephrine stimulation. These data suggest that this seed extract has antispasmodic, anticholinergic, antihistamine and antiadrenergic effects.

9202-0889 Arisawa, M., Fujita, A., Morita, N. , Okuyama, T., Nishino, H.(Department of Medicinal Resources, Faculty of Pharmaceutical Sciences, Toyama Medical & Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Inhibition of tumor-promotor-enhanced 3H-choline incorporation into cellular phospholipids by phloroglucinol derivatives from Mallotus japonicus.** *Journal of Natural Products*, v. 54(5): p. 1409-1412 , 1991 (24 ref, Eng).

The MeOH and chloroform extracts of the pericarps of *M.japonicus* showed potential anti-tumor-promotor activity. Seven constituents of the chloroform extract and two

derivatives from the most abundant constituent, mallojaponin, markedly inhibited the incorporation of 3H-choline into phospholipids of C3H101/2 cells enhanced by 12-O-tetradecanoylphorbol-13-acetate.

9202-0890 Asuzu, I.U., Shetty, S.N., Anika, S.M.(Department of Veterinary Physiology and Pharmacology, Faculty of Veterinary Medicine, University of Nigeria, Nsukka, Nigeria) **Effects of chronic oral administration in mice of the gut-stimulating crystals of Croton penduliflorus seed oil.** *Journal of Ethnopharmacology*, v. 30(2): p. 135-143 , 1990 (10 ref, Eng).

Crystals from *C.penduliflorus* seeds (CPC) were administered at weekly intervals in two doses (7 mg/kg and 21 mg/kg) by gastric intubation to mice over 12 weeks. CPC induced purgation in mice, with higher doses having a profound effect. Mice treated with CPC developed skin lesions and swollen scortums. There were significant changes in the PCV, Hb and plasma proteins of treated mice. Gangrene of the tail with subsequent sloughing was observed, particularly in the low dose group. Mice in the low dose group also experienced retarded growth. A significant clinical finding in the treated mice was abortion during the late pregnancy and 100 percent fetal mortality. NML, New Delhi.

9202-0891 Asuzu, L.U., Chineme, C.N.(Department of Veterinary Physiology and Pharmacology, University of Nigeria, Nsukka, Nigeria) **Effects of Morinda lucida leaf extract on Trypanosoma brucei infection in mice.** *Journal of Ethnopharmacology*, v. 30(3): p. 307-313 , 1990 (10 ref, Eng).

The dried leaves of *M.lucida* were extracted with 50 percent methanol and the extract was recovered in a 9.7 percent w/w yield. The intraperitoneal LD50 of the extract was 2000 mg/kg. The extract induced purgation in mice from the first hour after oral administration. The purgation was not dose-dependent. *M.lucida* leaf extract i.p. significantly suppressed the level of parasitemia after *T.brucei* infection in mice. Suppression of existing parasitemia appeared dose-dependent with 1000 mg/kg i.p. producing the maximum effect. The best trypanocidal activity was obtained when treatment with *M.lucida* extract commenced simultaneously with trypanosome inoculation. NML, New Delhi.

9202-0892 Basile, A.C., Sertie, J.A.A. , Panizza, S., Oshiro, T.T. , Azzolini, C.A.(Department of Pharmacology, Instituto de Ciencias Biomedicas, Universidade de Sao Paulo, 05508 Sao Paulo, SP, Brazil) **Pharmacological assay of Casearia sylvestris. 1. Preventive anti-ulcer activity and toxicity of the leaf crude extract.** *Journal of Ethnopharmacology*, v. 30(2): p. 185-197 , 1990 (24 ref, Eng).

An ethanol extract of the leaves of Brazilian *C.sylvestris*, given orally, inhibited gastric secretion in pylorus-ligated rats. At a prophylactic dose of 57.5 mg/kg, the extract showed a reduction of gastric juice more effectively than misoprostol (500 micro g/kg). In reducing hydrochloric acid output, the extract was less effective than misoprostol, cimetidine (320 mg/kg) and atropine (5.3 mg/kg). With the extract, the pH of the stomach contents was not significantly different from that of the controls. Stress-induced lesions produced by restraint and water immersion were significantly prevented by the extract for all levels of severity when compared with the controls. The extract exhibited low acute toxicity, oral LD50 more than 1840 mg/kg is 32 times higher then the antiulcerogenic ED50 of 57.5 mg/kg. NML, New Delhi.

9202-0893 Basto, A.S., Azenha, A.(Servico de Dermatologia, Hospital de Sao Marcos 4700 Braga, Portugal) **Contact dermatitis due to incense.** *Contact Dermatitis*, v. 24(4): p. 312-313, 1991 (2 ref, Eng).

Cases of allergic reactions to incense (oleoresin obtained from *Boswellia* species have been reported.

9202-0894 Bhattacharya, S.K., Mitra, S.K.(Neuropharmacology Laboratory, Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221005, India) **Anxiogenic activity of quinine-An experimental study in rodents.** *Indian Journal of Experimental Biology*, v. 30(1): p.33-37 , 1992 (21 ref, Eng).

Quinine, a cinchona alkaloid, was investigated for putative anxiogenic activity in view of clinical reports suggesting that it induces anxiety and apprehension following its use in malaria. The experimental paradigms chose to elucidate anxiogenic activity have been shown to stand the tests of reliability and validity. Yohimbine, was used for comparison. Quinine was found to elicit a complex behavioural profile of activity ranging from overt central stimulation to marked central depression on dose increment. The doses 10 and 20 mg/kg, ip, of quinine chosen to investigate anxiogenic activity were comparable to those induced by 2.5 and 5 mg/kg ip of yohimbine. Quinine induced a dose-related anxiogenic activity in the open-field and elevated plus-maze tests in mice, and the social interaction and thirst conflict tests in rats. The results indicate that quinine exerts significant anxiogenic effect at a particular dose range.

9202-0895 Bhide, N.K., Akhter, M.H.(Department of Pharmacology, All India Institute of Medical Sciences, New Delhi 110029, India) **Study of some antidotes in experimental Lantana camara poisoning in albino rats.** *Indian Veterinary Journal*, v. 68(12): p. 1122-1125 , 1991 (5 ref, Eng).

Dried alcoholic extract of fresh green leaves of *Lantana camara* was given orally (3 g/kg) to albino rats. After 4 to 14 hr exposure to sunlight induced maximal photodermatitis. The following antidotes significantly reduced photodermatitis: orally given liquid paraffin, oils of sesame, safflower and castor, activated charcoal and magnesium sulphate and i.p. promethazine and dexamethasone.

9202-0896 Bloor, S.J., Molloy, B.J.(DSIR Chemistry, Private Bag, Petone, New Zealand) **Cytotoxic norditerpene lactones from Ileostylus micranthus.** *Journal of Natural Products*, v. 54(5): p. 1326-1330 , 1991 (10 ref, Eng).

Three new and two known norditerpene lactones have been isolated from the cytotoxic fraction of an extract from a New Zealand mistletoe, *I.micranthus*. All these compounds exhibited strong cytotoxicity.

9202-0897 Bone, K.(Medi Herb Pvt Ltd. PO Box 713, Warwick 4370, Australia) **Coltsfoot- Is it safe ?.** *British Journal of Phytotherapy*, v. 1(3/4): p. 32-35 , 1990 (23 ref, Eng).

The leaves or mature flowers of coltsfoot (*Tussilago farfara*) have been long used in European traditional medicine for respiratory complaints. The detection of pyrrolizidine alkaloids (PAS) in the aerial parts has created concern over the safety of human use of coltsfoot as many PAS are hepatotoxic and may be carcinogenic. An account of the analysis, pharmacology, clinical data, toxicological data etc. of coltsfoot has been given, and the risk to human health by its use has been discussed.

9202-0898 Cao, W., Wang, J.(Beijing Agricultural University, Beijing, China) **Effect of reserpine and haloprenol on plasma prolactin in dairy goats.** *Acta Veterinaria et Zootechnica Sinica*, v. 21(4): p. 308-311, 1990 (9 ref, Chi, Eng).

Dairy goats were injected i.m. reserpine and haloperidol separately. Prolactin concentration in blood increased with reserpine injection and reached peak at 4 hr after injection. Haloperidol injections raised prolactin concentration and reached peak at 1 hr and again decreased at 4 hr. Plasma prolactin declined to normal at 12 hr after injection.

9202-0899 Ceglecka, M., Wojcicki, J., Gonet, B.*, Put, A., Kuzna-Grygiel, W. , Samochowiec, L.(Institute of Pharmacology and Toxicology, Department of Pathophysiology and Department of Biology, Medical Academy, Powstancow Wielkopolskich 72, 70-111 Szczecin, Poland) **Effect of pollen extracts on prolonged poisoning of rats with organic solvents.** *Phytotherapy Research*, v. 5(6): p. 245-249, 1991 (21 ref, Eng).

Male wistar rats were divided into four equal groups: controls, animals exposed to organic solvents, animals exposed to organic solvents and receiving pollen extracts, rats given pollen extracts. The experiment lasted 3 for months.The protective effect of pollen extracts against changes evoked by organic solvents was demonstrated. Pollen extracts inhibited or counteracted the elevation of aminotransferases and alkaline phosphatase activity and lipid and carbohydrate metabolism disturbances in the liver. The ascorbate system was improved. It is concluded, that pollen extracts are able to protect the liver against changes evoked by environmental influences.

9202-0900 Chawla, A.S., Manoj Kumar(Department of Pharmaceutical Sciences, Panjab University, Chandigarh 160014, India) **Antimalarial agents from plants.** *Indian Drugs*, v. 29(2): p. 57-60, 1991 (32 ref, Eng).

A number of plant species belonging to fifteen families reported to have antimalarial activity alongwith active principles wherever identified for the biological activity have been reviewed.

9202-0901 Che, Q., Akao, T., Hattori, M. , Kobashi, K., Namba, T. (Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama-930-01, Japan) **Metabolism of aloesin and related compounds by human intestinal bacteria: A bacterial cleavage of the C-glucosyl bound and the subsequent reduction of the acetonyl side chain.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 704-708, 1991 (12 ref, Eng).

By anaerobic incubation with a bacterial mixture from human feces, aloesin (aloeresin B; 1) was converted to 2-acetonyl-7-hydroxy-5-methylchromone (aloesone; 3) and dl-7-hydroxy-2-(2'-hydroxypropyl)-5-methylchromone (aloesol; 4a+4b) through a cleavage of the C-glucosyl bond, followed by reduction of the acetonyl side chain. An analogous compound, aloeresin A (2), was converted to p-coumaric acid and aloesin (1), the latter being subsequently transformed to aloesone (3) and dl-aloesol (4a+4b). On the other hand, 7-O-methylated derivatives (7, 5a and 5b) of aloesin and of 8-C-glucosylaloesol were not cleaved to the corresponding aglycones, suggesting the importance of a free hydroxy group adjacent to the C-glucosyl group in the molecule for the bacterial cleavage of aloesin derivatives. This is the first report on the cleavage of the C-glycosyl bond of chromone C-glucosides by intestinal bacteria.

9202-0902 Chen, C.C., Huang, Y.L., Ou, J.C., Su, M.J., Yu, S.M., Teng, C.M.(National Research Institute of Chinese Medicine, 2 Lane 391, Pei-I Rd. Sec.2, Hsintein, Taipei Hsien, Taiwan 231787, Republic of China) **Bioactive principles from the roots of Lindera megaphylla.** *Planta Medica*, v. 57(5): p. 406-408, 1991 (7 ref, Eng).

d-Dicentrine was isolated from the root of *L.megaphylla*. It inhibited the aggregation of washed rabbit platelets induced by ADP, collagen, arachidonic acid, and PAF. It also inhibited the high potassium- and norepinephrine-induced contraction of rat thoracic aorta. In rat ventricular cells treated with 3 microM d-dicentrine, the action potential duration (ADP 50) was prolonged from 59.9 +- 11.3 msec to 201 +- 28.7 msec.

9202-0903 Claeson, P.(Department of Pharmacognosy, Faculty of Pharmacy, Uppsala Biomedical Centre, Box 579, S-751 23 Uppsala, Sweden) **Pharmacognostic studies on scented myrrh with emphasis on the biological activities of the isolated sesquiterpene T-cadinol.** *Acta Pharmaceutica Nordica*, v. 3(3): p. 185-186, 1991 (Eng).

Bissabol or Habak Hadi, a traditional Somalian medicine for diarrhoea, exhibited antidiarrhoeal activity in mice. Botanical origin of the drug has been concluded to be *Commiphora guidottii* Chiov. and not *C.erythraea* var *glabrescens*, as has generally been assumed. T-cadinol, identified as the active constituent of the drug, exhibited antidiarrhoeal activity in experimental mice and antispasmodic activity in the isolated guinea pig ileum. In the isolated rat aorta, T-cadinol exhibited calcium antagonistic (calcium channel blocking) properties. T-cadinol also exhibited bactericidal activity against *Staphyllococcus aureus*.

9202-0904 Cordoba, M.A., Coto, C.E., Damonte, E.B.*(Laboratorio de Virologia, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Ciudad Universitaria, Pabellon 2, Piso 4, 1428 Buenos Aires, Argentina) **Virucidal activity in aqueous extracts obtained from Cedrela tubiflora leaves.** *Phytotherapy Research*, v. 5(6): p. 250-253, 1991 (7 ref, Eng).

Crude extracts obtained from leaves of *C.tubiflora*(CT) show antiviral and virucidal effects against several viruses. Herpes simplex, pseudorabies and vesicular stomatitis viruses were extremely susceptible and a reduction of 3-5 log in infectivity occurred after 15 min of direct incubation with the plant extract. By contrast, poliovirus and the Tacaribe arenavirus are inhibited intracellularly. The inhibitory action is dose dependent and no cytotoxic effects were detected on Vero cells after 2 days of CT treatment.

9202-0905 De Tommasi, N., De Simone, F. , Cirino, G., Cicala, C., Pizza, C.*(Dipartimento di Chimica delle Sostanze Naturali, Univerita' di Napoli "Federico II", Via D. Montesano 49, I-80131 Napoli, Italy) **Hypoglycemic effects of sesquiterpene glycosides and polyhydroxylated triterpenoids of Eriobotrya japonica.** *Planta Medcia*, v. 57(5): p. 414-416, 1991 (9 ref, Eng).

The effects of the constituent sesquiterpene glycosides 1 to 3 and polyhydroxylated triterpenoids 5 to 6 isolated by MeOH extraction of *E.japonica* were studied in genetically diabetic mice and normoglycemic rats. The sesquiterpene glycoside 3 and the polyhydroxylated triterpenoids 5 and 6 produced a marked inhibition of glycosuria. Further more, 5 and 6 were able to reduce blood glucose levels in normoglycemic rats.

9202-0906 De, S., Ravishankar, B., Bhavsar, G.C.(Institute of PG Teaching and Research, Gujarat Ayurved University, Jamnagar 361 008, Gujarat, India) **Evaluation of Gymnosporia montana for hepatoprotective and anti-inflammatory activities.** *Indian Drugs*, v. 29(3): p. 107-109, 1991 (10 ref, Eng).

Methanol extract of *G.montana* leaves was found to reduce the pentobarbitone induced sleeping time and suppress the serum transminase activity indicating its hepatoprotective activity. No antiinflammatory activity was exhibited by the extracts.

9202-0907 Deng, H.L., Zhang, J.T.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Anti-lipid peroxilative effect of ginsenoside Rb1 and Rg1.** *Chinese Medical Journal*, v. 104(5): p. 395-398, 1991 (10 ref, Eng).

The antioxidant activity of ginsenosides Rb1 and Rg1 obtained from *Panax ginseng* was studies on production and superoxide anion formation in vitro and the liver antioxidative enzyme activities in vivo. The results indicated that Rb1 and Rg1 could inhibit lipid peroxidation of rat liver and brain microsomes and that Rb1 at 10-4 10-3 mol/L, could scavenge O-2. In in vivo experiment, Rb1 inhibited MDA formation and increased activities of glutathione peroxidase and catalase. Besides Rb1 facilitated memory processes and protected damages against stress. Rb1 is thought to be a promising drug for the aged.

9202-0908 Desai, V.B., Hiremath, R.D., Rasal, V.P., Gaikwad, D.N., Shankaranarayana, K.H.(Institute of Wood Science & Technology, Bangalore 3, India) **On the pharmacological screening of HESP and sandalwood oils.** *Indian Perfumer*, v. 35(2): p. 69-70, 1991 (6 ref, Eng).

The two essential oils, viz., sandalwood oil (*Santalum album*) and the oil obtained from hydrolysed exhausted

sandal-powder (HESP) exhibit the following biological activities; CNS activity, hypotensive activity, antitremorogenic activity, antiinflammatory activity, antipyretic activity, antimitotic activity, antiviral activity, anticancer activity. However, HESP oil has been found to be more efficacious than the sandalwood oil in exhibiting some pharmacological activities.

9202-0909 Diwan, P.V., Karwande, I., Singh, A.K.(Biology Group (Pharmacology), Indian Institute of Chemical Technology, Hyderabad 500 007, AP, India) **Anti-anxiety profile of Manduk Parni (Centella asiatica) in animals.** *Fitoterapia*, v. 62(3): p. 253-257, 1991 (10 ref, Eng).

The influence on CNS of an aqueous extract of "Manduk Parni" *C.asiatica* claimed to be a brain tonic , has been discussed. Manduk Parni aq extract (25 mg/kg) i.p. decreased spontaneous motor activity and delayed pentylenetetrazole induced convulsions in mice. This activity was comparable to diazepam. Manduk Parni aq extract potentiated pentobarbitone induce sleep but did not affect immobility time in swimming test. The above tests prove that Manduk Parni aq extract has an antianxiety effect but does not affect the behavioural despair and is comparable with diazepam.

9202-0910 Dixit, V.P., Jain, P., Bhandari, K., Purohit, A.K. (Reproduction Physiology Section, Department of Zoology, University of Rajasthan, Jaipur 302 004, Rajasthan, India) **Effects of ginseng (G-115) on serum lipids of hyperlipidaemic Rhesus monkeys(Macaca mulata).** *Indian Journal of Pharmaceutical Sciences*, v. 53(3): p. 88-91, 1991 (11 ref, Eng).

The effect of ginseng (G-115) on serum lipids was studied in hyperlipidaemic monkey. Ginseng (G-115) markedly reduced serum triglycerides and cholesterol in hyperlipidaemic rhesus monkeys ranging from 36-72 percent. HDL-cholesterol/total cholesterol ratio was increased. A reduction in LDL and VLDL cholesterol levels suggest the beneficial effects of G-115 since LDL and VLDL are atherogenic factors.

9202-0911 Dixit, V.P., Jain, P.(Reproduction Physiology Section, Department of Zoology, University of Rajasthan, Jaipur 302004, Rajasthan, India) **Effects of Medicago sativa (50 percent EtoH) on the serum lipids in triton induced hyperlipidaemic Rhesus monkey's(Macaca mulata).** *Advances in Biosciences*, v. 9(2): p. 1-6, 1991 (13 ref, Eng).

Administration of alfalfa seed extract (50 percent EtoH v/v) markedly reduced the levels of triglyceride and phospholipids in Triton 1339 induced hyperlipidaemic rhesus monkeys. HDL-cholesterol/total cholesterol ratio was substantially increased. A reduction in LDL- and VLDL-cholesterol level showed the benficial effects of the plant products. NSL, New Delhi.

9202-0912 Dong, J.X., Yu, H.G.(School of Pharmacy, Second Military Medical University, 325 Guo He Road, Shanghai, 200433, People's Republic of China) **A new active steroidal saponin from Anemarrhena asphodeloides.** *Planta Medica*, v. 57(5): p. 460-462, 1991 (8 ref, Eng).

A new active steroidal saponin, anemarsaponin B, was isolated from the rhizomes of *A.asphodeloides*. The structure of anemarsaponin B was elucidated as 26-O-beta-D-glucopyranosylfurost-20(22)-ene-3beta,26-diol-3-O-beta-D-glucopyranosyl-(1 to 2)-beta-D-galactopyranoside by chemical and spectral studies. Preliminary pharmacological tests showed that anemarsaponin B could inhibit PAF-induced rabbit platelet aggregation in vitro.

9202-0913 Duker, E.M., Kopanski, L., Jarry, H., Wuttke, W. (Department of Clinical and Experimental Endocrinology, University of Gottingen, Robert-Koch-Str.40, Federal Republic of Germany) **Effects of extracts from Cimicifuga racemosa on gonadotropin release in menopausal women and ovariectomized rats.** *Planta Medica*, v. 57(5): p. 420-424, 1991 (14 ref, Eng).

The effects of Remifemin, an ethanolic extract of the rhizome of *C.racemosa* on LH and FSH secretion of menopausal women were investigated. After an 8 weeks treatment, LH but not FSH levels were significantly reduced in patients receiving the *Cimicifuga* extract. To further characterize the endocrinologically active principles of this plant extract, a lipophilic extract was prepared and fractionated and three types of active compounds were obtained: viz., constitutents which suppress LH release after chronic treatment constituents binding to the estrogen receptor and also suppressing LH release, and compounds which are ligands for the estrogen receptor but without an effect on LH release. It is concluded that the LH suppressive effect of Cimicifuga extracts observed in menopausal women and ovx rats is caused by at least three different synergistically acting compounds.

9202-0914 Ena, P., Cerri, R., Dessi, G. , Manconi, P.M., Atzei, A.D.(Istituto di Clinica Dermatologica, Universita di Sassari, Viale Mancini 5, 07100 Sassari, Italy) **Phototoxicity due to Cachrys libanotis.** *Contact Dermatitis*, v. 24(1): p. 1-5, 1991 (11 ref, Eng).

After classification and identification of the plant, the alcoholic extract of *C.libanotis* was analysed in order to identify the phototoxic agents. The substances responsible for photodermatitis were found to be 4 furocoumarins, of

which 3 have been clearly identified, namely 5-methoxy-, 8-methoxy- and 5,8-dimethoxypsoralen. The structure of a 4th compound was not completely defined.

9202-0915 Fang, Z.Z., Yoshizaki, F.*, Ando, T., Hisamichi, S. (Tohoku College of Pharmacy, 4-4-1 Komatsushima, Aoba-ku, Sendai 981, Japan) **Effect of decoction water volumes on Paeonol elution from moutan cortex.** *Shoyakugaku Zasshi*, v. 45(2): p. 142-144, 1991 (7 ref, Eng).

The effect of the volume of decoction water on the paeonol elution from several Chinese medicinal prescriptions containing Moutan Cortex was examined. The result showed that 700-900 ml of water is enough for the paeonol extraction from any of the prescriptions containing Moutan Cortex (*Paeonia suffruticosa*).

9202-0916 Fernando, M.R., Thabrew, M.I.(Department of Biochemistry, Faculty of Medicine, Galle, Sri Lanka) **Studies on the possible toxicity of Artocarpus heterophyllus.** *Ceylon Journal of Medical Science*, v. 32(1): p. 1-7 , 1989 (Recd. 1991, 12 ref, Eng).

Extracts of leaves of *A.heterophyllus* did not exert any adverse effects on liver functions, haematological parameters, reproductive ability, histology of heart, lung, kidney, intestines and pancreas of rats.

9202-0917 Formukong, E.A., Evans, A.T., Evans, F.J.*, Garland, L.G.(Department of Pharmacognosy, The School of Pharmacy, 29-39 Brunswick Square, London WC1N 1AX, UK) **Inhibition of A23187-induced release of leukotriene B4 in mouse whole blood ex vivo and human polymorphonuclear cells in vitro by the cannabinoid analgesic cannabidiol.** *Phytotherapy Research*, v. 5(6): p. 258-261, 1991 (16 ref, Eng).

The effects of CBD, a potent analgesic cannabinoid on LTB4 and TXB2 production stimulated by A23187 was determined in mouse blood ex vivo and in human polymorphonuclear cells in vitro. At a dose of 10 mg/kg administered orally CBD inhibited LTB4 production in mouse blood and was equieffective to the dual lipoxygenase/cyclo-oxygenase inhibitor BW755C and the lipoxygenase inhibitor BWA4C used at a dose of 50 mg/kg. In the same blood samples CBD stimulated TXB2 production from between 20 to 30 percent over a 4 h period. A23187 stimulation of LTB4 synthesis in human polymorphonuclear cells was inhibited by CBD and delta'-THC (a hallucinogenic principle of *Cannabis sativa* in a dose related manner (IC505.4 and 8.2 microM respectively). However, only CBD produced a 100 percent inhibition of LTB4 synthesis. The production of TXB2 in these cells was initially stimulated at low doses by CBD but at higher doses TXB2 synthesis was inhibited.

9202-0918 Fuji, K., Xu, H.J., Tatsumi, H. , Imahori, H., Ito, N., Node, M. , Inaba, M.(Institute for Chemical Research, Kyoto University, Uji, Kyoto 611, Japan) **Design and synthesis of antitumor compounds based on the cytotoxic diterpenoids from the genus Rabdosia.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 685-689 , 1991 (12 ref, Eng).

Two active sites responsible for antitumor activity, an oxirane ring and an alpha-methylene-cyclopentanone moiety, have been extracted from studies on the structure-activity relationship of the cytotoxic diterpenoids isolated from *R.shikokiana*. Series of the simplified cyclopentanone derivatives containing both of the two active sites in the molecule have been synthesized and evaluated for cytotoxicity against P388 cells. The compounds possessing both of two active sites displayed cytotoxicity at a concentration of 1 microg/ml, while those possessing a single active site showed no activity.

9202-0919 Galvez, J., Zarzuelo, A., Crespo, M.E., Utrilla, M.P., Jimenez, J., Spiessens, C., de Witte, P.(Departmento de Farmacologia, Facultad de Farmacia, Universidad de Granada, Granada, Spain) **Antidiarrhoeic activity of Sclerocarya birrea bark extract and its active tannin constituent in rats.** *Phytotherapy Research*, v. 5(6): p. 276-278, 1991 (15 ref, Eng).

The antidiarrhoeic activity of the bark of *S.birrea* was investigated. The lyophilized decoction demonstrated antidiarrhoeic activity in experimental models of diarrhoea induced by magnesium sulphate and sodium picosulphate. This antidiarrhoeic activity was related to an inhibition of intestinal transit rather than to inhibition of net secretion of fluid and electrolytes provoked by the laxative agents. A condensed tannin was isolated from the crude drug which produced inhibition in intestinal motility, and the monomer of which was identified as procyanidin.

9202-0920 Goncalo, M., Goncalo, S.(Clinica de Dermatologia, Hospital da Universidade de Coimbra, 3000 Coimbra, Portugal) **Allergic contact dermatitis from Dittrichia viscosa (L.) Greuter.** *Contact Dermatitis*, v. 24(1): p. 40-44, 1991 (26 ref, Eng).

9 Cases of contact sensitivity to *D.viscosa* mainly with an airborne pattern, are described. All patients reacted to the fresh leaf of the plant and to its ethereal extracts at 1 and 0.5 percent pet. and some of them also to that at 0.1 percent pet. Positive reactions to *Frullania dilatata, Laurus nobilis*, some other members of the Compositae, and helenin were observed, suggesting the diagnosis of a sesquiterpene-lactone-induced allergic contact dermatitis.

9202-0921 Gong, Y.H., Jiang, J.X., Li, Z. , Zhu, L.H., Zhang, Z.Z. (Department of Pharmacology and Department of Cytotoxicology, Kunming Medical College Kunming 650031, China) **Hypoglycemic effect of sanchinoside C1 in alloxan diabetic mice.** *Acta Pharmaceutica Sinica*, v. 26(2): p. 81-85, 1991 (7 ref, Eng).

The effect of sanchinoside C1 (ginsenoside Rg1), one of the major effective components of *Panax notoginseng*, was investigated on diabetic animals and compared with insulin. Sachinoside C1 lowered plasma glucose level in diabetic animals in dose dependent manner. Its effect lasted for more than four hours and no synergism or antagonism between sonchinoside C1 and insulin was observed.

9202-0922 Gu, J., Zheng, R.*, Zhang, Z. , Jia, Z.(Department of Biology, Lanzhou University, Lanzhou 730000, People's Republic of China) **Inhibition of taxanes on DNA and protein syntheses of tumor cells.** *Planta Medica*, v. 57(5): p. 495, 1991 (2 ref, Eng).

The inhibition either on DNA or on protein syntheses by taxanes (isolated from the stem and leaves of *Taxus chinensis*) with acetylated C-13 was much greater than those of the other taxanes without the acetylated C-13. The studies of structure-activity relationship revealed that cytotoxicity requires both an intact ring and an ester side chain at the position C-13. However, the acetylated C-13 was a major factor responsible for taxane diterpenoids antitumoractivity.

9202-0923 Hausen, B.M.(Department of Dermatology, University Hospital, Martinistrasse 52, D-2000 Hamburg 20, FRG) **Hydrangenol, a strong contact sensitizer found in Hydrangea (Hydrangea Sp.; Hydrangeaceae).** *Contact Dermatitis*, v. 24(3): p. 233-235, 1991 (17 ref, Eng).

Hydrangenol (3,4-dihydro-8-hydroxy-3-(4-hydroxyphenyl)-isocoumarin was obtained from ether extract of the aerial parts of *Hydrangea* species. Sensitization on guinea pigs was performed using FCA technique. The results indicate that hydrangenol gave strong reactions even at a dilution of 0.01 percent. Hydrangenol must be considered a strong contact sensitizer.

9202-0924 Ikeda, Y., Sugiura, M., Fukaya, C. , Yokoyama, K., Hashimoto, Y., Kawanishi, K., Moriyasu, M.(Research Division, The Green Cross Corp., 2-1180-1 Shodai-ohtani, Hirakata, Osaka 573, Japan) **Periandradulcins A, B and C: Phosphodiesterase inhibitors from Periandra dulcis Mart..** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 566-571 , 1991 (12 ref, Eng).

During the course of screeniag of bioactive natural products, three new saponins named periandradulcins A (I), B (II) and C (III) were isolated as phosphodiesterase (PDE, EC 3.1.4.17) inhibitors from 80 percent MeOH extract of the roots of *P.dulcis* by a combination of column chromatography and reversed- and normal-phase high-performance liquid chromatography. On the basis of 1H-, 13C- and two-dimensional nuclear magnetic resonance (NMR) spectral data and chemical evidence, their chemical structures were characterized. The concentrations of periandradulcins A, B and C required to give 50 percent inhibiton (IC50 values) of PDE from bovine heart, were 0.033, 7.6 and 7.7 microM, respectively. Compound 1 was the most potent among the known PDE inhibitors; it inhibited PDE-I(IC50:0.002 microM) twenty and forty times more effectively than PDE-II and -III, respectively.

9202-0925 Inamori, Y., Ogawa, M., Tsujibo, H. , Baba, K., Kozawa, M., Nakamura, H.(Osaka University of Pharmaceutical Sciences, Kawai, Matsubara-shi, Osaka 580, Japan) **The inhibitory effect of 3,3',4,5'-tetrahydroxystilbene, a constituent of Cassia garrettiana, on anti-IgE-induced histamine release from human basophils in vitro.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 805-807 , 1991 (10 ref, Eng).

3,3',4,5'-Tetrahydroxystilbene (I), a constituent of *C.garrettiana* strongly inhibited the anti-IgE-induced histamine release from human basophils in vitro at concentrations of 3 to 30 micro M. Considering that disodium cromoglycate showed no significant inhibitory activity in this assay method, the strong effect of I should be emphasized.

9202-0926 Indap, M.A., Ambaye, R.Y.(Bio-Organic Unit, Cancer Research Institute, Tata Memorial Centre, Parel, Bombay 400 012, Maharashtra, India) **Therapy of murine tumours with the combination of cytotoxic drugs and indicine-N-oxide.** *Indian Drugs*, v. 29(1): p. 17-19, 1991 (6 ref, Eng).

Combined effect of indicine-N-oxide, a pyrrolizidine alkaloid isolated from *Heliotropium indicum* and cancer chemotherapeutic drugs on experimental transplantable tumours has been reported. Simultaneous administration of lower doses of indicine-N-oxide with cytotoxic drugs or keeping a gap of four hours has been suggested.

9202-0927 Kaji, T., Hayashi, T., Nsimba, M. , Kaga, K., Ejiri, N., Sakuragawa, N.(Department of Clinical Laboratory Medicine, Faculty of Medicine, Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Gardenia fruit extract does not stimulate the proliferation of cultured vascular smooth muscle cells, A10.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1312-1314 , 1991 (12 ref, Eng).

The effect of a hot water extract from *Gardenia* fruit *G.jasminoides*(GFE) which has a stimulatory effect on endothelial cell proliforation was examined, on the proliferation of A10 cells, an established cell line of vascular smooth muscle cell from murine aorta in a culture system. GFE did not change the number of A10 cells after a 48 h culture. GFE significantly increased the incorporation of thymidine and leucine into the acid-soluble fraction of bovine aortic endothelial cell layers, but significantly decreased that of A10 cells. These results suggested that GFE does not stimulate the porliferation because A10 cells did not produce a significant amount of the basic fibroblast growth factor. The selective stimulation of endothelial cell proliferation by increasing the production of basic fibroblast growth factor is appropriate for prevention of arteriosclerosis and thrombosis. This also indicates the presence of a beneficial component in GFE.

9202-0928 Kakiuchi, N., Kusumoto, I.T. , Hattori, M., Namba, T., Hatano, T. , Okuda, T. (Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, Sugitani, Toyama, 930-01, Japan) **Effect of condensed tannins and related compounds on reverse transcriptase.** *Phytotherapy Research*, v. 5(6): p. 270-272, 1991 (15 ref, Eng).

Inhibitory effects of 18 condensed tannins from *Saxifraga stolonifera, Hypericum erectum, Psidium guajava, Bergenia purpurascens, Thea sinensis, Koelreuteria paniculata* and *Geranium thunbergii* and related compounds on reverse transcriptase from an RNA tumour virus were examined in the presence of poly (riboadenylic acid) oligo (deoxythymidylic acid) ((rA)n(dT)12-18) or poly (ribocytidylic acid) oligo (deoxyguanylic acid) ((rC)n(dG)12-18) as a template-primer. A potent inhibitory effect was found in galloylated monomers and oligomers as well as non-galloylated tetramer, trimer and two of three dimers. The mode of the inhibition of one of them, procyanidin B-2, was competitive with regard to the template-primer.

9202-0929 Kamel, M.S., Ohtani, K., Kurokawa, T., Assaf, M.H., El-Shanawany, M.A., Ali, A.A., Kasai, R.*, Ishibashi, S., Tanaka, O. (Institute of Pharmaceutical Sciences, Hiroshima University, School of Medicine, Kasumi, Minami-ku, Hiroshima 734, Japan) **Studies on Balanites aegyptiaca fruits, an antidiabetic Egyptian folk medicine.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1229-1233 , 1991 (12 ref, Eng).

An aqueous extract of mesocarps of the fruits of *B.aegyptiaca* exhibited a prominent antidiabetic activity by oral administration in streptozotocin induced diabetic mice. From one of the active fractions of this extract two known saponins and two new steroidal saponins were isolated. The structures of new saponins were determined as 26-O-beta-D-glucopyranosyl-(25R)-furost-5-ene-3beta,22,26-triol 3-O-{alpha-L-rhamnopyranosyl-(1 to 2)}-{beta-D-xylopyranosyl-(1 to 3)}-{alpha-L-rhamnopyranosyl-(1 to 4)}-beta-D-glucopyranoside and its 22-methyl ether. The individual saponins did not show antidiabetic activity, but the recombination of these saponins resulted in significant activity. From an ethanolic extract of the epicarps, two known flavonol glycosides, isorhamnetin-3-O-robinobioside and isorhamnetin-3-O-rutinoside were isolated and identified.

9202-0930 Kano, Y., Zong, Q., Komatsu, K.(Hokkaido Institute of Pharmaceutical Sciences, 7-1 Katuraoka-cho, Otaru 047-02, Japan) **Pharmacological properties of galenical preparation.XIV. Body temperature retaining effect of the Chinese traditional medicine, "Goshuyu-to" and component crude drugs.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 690-692 , 1991 (7 ref, Eng).

Goshuyu-to or Evodia fruit extract and ginger extract was administered orally to untreated rats,and a slight but not significant rise in their body temperature was observed. In rats treated with chlorpromazine, the administration of Goshuyu-to prevented decrease in the body temperature. After administration of each extract of component crude drugs *Evodia* fruit, ginger, ginseng, jujube, such an effect was recognized only by *Evodia* fruit, and other component crude drugs exhibited no body temperature retaining effect in this experiment system. The effect of *Evodia* fruit alkaloid hydroxyevodiamine, evodiamine, rutaecarpine and evocarpine was studied, when used individually and confirmed that the body temperature retaining effect occurred mainly with evodiamine.

9202-0931 Kardono, L.B.S., Angerhofer, C.K. , Tsauri, S., Padmawinata, K., Pezzuto, J.M., Kinghorn, A.D.*(Program for Collaborative Research in the Pharmaceutical Sciences and Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois 60612, USA) **Cytotoxic and antimalarial constituents of the roots of Eurycoma longifolia.** *Journal of Natural Products*, v. 54(5): p. 1360-1367 , 1991 (28 ref, Eng).

Four canthine-6-one alkaloids, namely 9-methoxycanthin-6-one, 9-methoxycanthin-6-one-N-oxide, 9-hydroxycanthin-6-one and 9-hydroxycanthin-6-one-N-oxide and one quassinoid, eurycomanone have been identified as cytotoxic principles of *E.longifolia* roots. All these compounds exhibited significant cytotoxic activity against a number of human cancer cell lines. Beta-carboline-1-propionic acid and 7-methoxy-beta-carboline-1-propionic acid also isolated from the plant

did not exhibit anticancer activity but were found to demonstrate significant antimalarial activity in cultured *Plasmodium falciparum* strains. Structures of all these compounds have been established by spectral and chemical methods.

9202-0932 Karunanayake, E.H., Jeevathayaparan, S., Tennekoon, K.H.(Department of Biochemistry, Faculty of Medicine, University of Colombo, Colombo 8, Sri Lanka) **Effect of Momordica charantia fruit juice on streptozotocin-induced diabetes in rats.** *Journal of Ethnopharmacology*, v. 30(2): p. 199-204 , 1990 (12 ref, Eng).

Oral administration of the juice (10 ml/kg for 30 days) did not show a significant effect, either acute or cumulative, on the ability to tolerate an external glucose load. The glycosylated haemoglobin concentrations were significantly elevated in both juice-treated and untreated diabetic rats. Viable beta-cells capable of secreting insulin upon stimulation appear to be required for *M.charantia* to exert its oral hypoglycaemic activity. NML, New Delhi.

9202-0933 Kawata, Y., Hattori, M., Akao, T., Kobashi, K., Namba, T.(Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, 2630, Sugitani, Toyama, 930-01, Japan) **Formation of nitrogen-containing metabolites from geniposide and gardenoside by human intestinal bacteria.** *Planta Medica*, v. 57(6): p. 536-542, 1991 (19 ref, Eng).

During metabolism of iridoid glycosides by human intestinal bacteria, geniposide and gardenoside(isolated from the fruit of *Gardenia jasminoides* were transformed to new nitrogen-containing compounds, genipinine and gardenine respectively, along with the known aglycones. The amounts of new metabolites were quantitatively analyzed by means of liquid chromatography/mass spectrometry. Of 25 strains of human intestinal bacteria, *Peptostreptococcus anaerobius, Klebsiella pneumoniae, Fusobacterium nucleatum* and *Bacteroides fragilis* ssp *thetaotus* produced appreciable amounts of genipinine, while a bacterial mixture of human feces produced 10 times or more higher amounts of genipinine as compared to the individual strains.

9202-0934 Khanna, A.K., Chander, R., Kapoor, N.K.*(Division of Biochemistry, Central Drug Research Institute, Lucknow 226 001, UP, India) **Hypolipidemic activity of Abana in rats.** *Fitoterapia*, v. 62(3): p. 271-274, 1991 (21 ref, Eng).

Chronic administration of Abana, an Indian herbomineral preparation, showed a significant hypolipidemic activity in rats. Serum beta-lipoprotein, lipid components and apoprotein levels were significantly lowered, low density lipoprotein being more affected than very low density lipoprotein. However, serum high density lipoprotein lipids and apoproteins were slightly increased. The reduction in the lipid components of serum and liver were accompanied with decreased level of serum free fatty acids and hepatic lipolytic enzyme activities. Abana caused marked inhibition in hepatic biosynthesis of cholesterol and enhanced the excretion of faecal bile acids. The mode of action of Abana as a cardioprotective and hypolidemic agent is explained.

9202-0935 Kim, C.J., Chung, J.M.(College of Pharmacy, Chung-Ang University, Seoul, 156 070, Korea) **Pharmacological activities of flavonoids (1)- Relationships of chemical structure of flavonoids and their inhibitory activity of hypersensitivities.** *Yakhak Hoeji*, v. 34(5): p. 348-364, 1990 (108 ref, Eng, Kor).

The activities of 21 flavonoids and their related compounds on the hypersensitivity reaction against various antigens have been studied in vitro and in vivo. Generally flavonoids inhibited significantly the homologous passive cutaneous anaphylaxis (PCA) induced by the reaginic antibody as compared with anaphylaxis by compound 48/80-induced mast cell degranulation and so more strongly active in the IgE-mediated anaphylaxis than non-IgE-mediated anaphylaxis. Quercetin, kaempferol, hesperetin, disodium cromglycate, malvin and baicalin were active dose-dependently in all types of hypersensitivity. Fisetin, daidzein, morin, narigin, flavone, catechin, rutin, hesperidin, neohesperidin, apigenin and chrysin were significantly active in various types of hypersensitivity, but apigenin, rutin and catechin were less active in the delayed hypersensitivity. Taxifolin was significantly active in PCA and histamine-induced anaphylaxis except other types of sensitivity. Rotenone and cyanin also inhibited all types of hypersensitivity, but they are toxic. Structure-activity-relationships of these flavonoids have been discussed.

9202-0936 Kondo, Y., Suzuki, H.(Pharmaceutical Institute, Tohoku University, Aobayama, Aoba-ku, Sendai 980, Japan) **Suppression of tumor cell growth by berberrubine, a pyrolyzing artifact of berberine.** *Shoyakugaku Zasshi*, v. 45(1): p. 35-39, 1991 (15 ref, Jap, Eng).

Berberrubine, obtained from heat-treated *Phellodendron* bark or *Coptis* rhizoma, was found to inhibit dose-dependently the growth of several tumor cell lines, such as leukemia P388, leukemia L1210 and melanoma B16, and more than 90 percent inhibition of the growth was observed at 10-30 microg/ml. Berberrubine (50 mg/kg/day) did not suppress the plaque forming cell response to a T cell dependent antigen by a 4 day treatment, nor did it affect the number of splenocytes. Furthermore, berberrubine did not

show any mutagenicity as judged by the microbial mutation test using Salmonella typhimurium TA 100.

9202-0937 Lopez-Garcia, R.E., Rabanal, R.M.* , Darias, V., Martin-Herrera, D., Carreiras, M.C., Rodriguez, B.(Departamento de Farmacologia, Facultad de Farmacia, Universidad de La Laguna, La Laguna, Tenerife, Spain) **A preliminary study of Cedronella canariensis (L.) var. canariensis extracts for antiinflammatory and analgesic activity in rats and mice.** *Phytotherapy Research*, v. 5(6): p. 273-275, 1991 (18 ref, Eng).

Several extracts and fractions from *C.canariensis* have been submitted to analgesic, antipyretic and antiinflammatory tests on rats and mice. The experimental results obtained justified the utilization of this species as an anticatarrh and antiinfluenza agent in Canarian folk medicine. Its acute toxicity turned out to be low as measured in mice.

9202-0938 Martis, G., Rao, A.*, Karanth, K.S.(Department of Biochemistry, Kasturba Medical College, Manipal 576119, Karnataka, India) **Neuropharmacological activity of Acorus calamus.** *Fitoterapia*, v. 62(4): 331-337, 1991 (24 ref, Eng).

The aqueous and alcoholic extracts of the rhizomes of *A.calamus* reduced the severity of maximum electric shock induced seizures in rats but did not exhibit complete protection. Further, the extracts significantly increased the pentylenetetrazole induced seizure latency. The extracts did not exhibit any antidepressant or sedative effects nor produce muscle incoordination. However, both the extracts potentiated the barbiturate induced hypnosis. Administration of the extracts for longer duration in combination with reduced doses of standard drug used for treating "petit mal" epilepsy patients has been recommended.

9202-0939 Matsuda, H., Samukawa, K., Kubo, M.(Faculty of Pharmaceutical Sciences, Kinki University, 3-4-1, Kowakae, Higashiosaka, Osaka 577, Japan) **Anti-hepatitic activity of ginsenoside Ro.** *Planta Medica*, v. 57(6): p. 523-526, 1991 (8 ref, Eng).

Ginsenoside Ro (50 and 200 mg/kg, p.o), an oleanane-type saponin isolated from *Panax ginseng* inhibited the increase of serum glutamic oxaloacetic transaminase (s) and serum glutamic pyruvic transaminase (s) levels in D-galactosamine (GalN)- and CCl4 induced acute hepatitic rats. Ginsenoside Ro inhibited the increase of connective tissue in the liver of CCl4-induced chronic hepatitic rats. Ginsenoside Ro showed a stronger inhibitory effect on the GalN-induced acute hepatitic model than those of the aglycone of ginsenoside Ro, oleanolic acid, or glycyrrhizic acid and its aglycone, glycyrrhetinic acid.

9202-0940 Meier, B., Liebi, M.(C/O Zeller AG, CH-8590 Roman Shorn, Switzerland) **Medicinal plants containing salicin: Effectiveness and safety.** *British Journal of Phytotherapy*, v. 1(3/4): p. 36-42 , 1990 (34 ref, Eng).

Salicin is the chief analgesic component in herbal medicines made from willows and poplars. The physiological behaviour of salicin and acetyl salicylic acid has been compared. An account of salicin-rich plants has been given and the made of plant preparations, their side effects, pharmacological effects of Salicaceae constituents have been discussed.

9202-0941 Misra, S.K.(Society for Indigenous Veterinary Medicines, No. 160, Shardanagar, Saharanpur, UP, India) **Inflammation and antiinflammatory ingredients of Teeburb.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 1-4 , 1991 (24 ref, Eng).

Teeburb is a herbal product of M/s Indian Herbs. The relevant information on each of the ingredients viz., *Berberis aristata, Curcuma longa, Cedrus deodara* (deodar) and *Pinus griffithi* (Blue pine or Bhutan pine) has been reviewed.

9202-0942 Misra, V.D.(Department of Psychology, PG College, Ghazipur 233001, UP, India) **Heroin addicts: an assessment of their anxiety.** *Indian Journal of Criminology*, v. 19(2): p. 108-112 , 1991 (4 ref, Eng).

The present study is aimed at assessing the anxiety of heroin addicts and comparing it to that of the non-addicts.37 heroin addicts and 45 non-addicts were chosen for this study. Addicts did not reveal any significant difference when measured for total anxiety but dis- played significant differences when compared on various components of anxiety. Heroin addicts have shown greater guilt proneness and frustration, tension, than their non-addict counterparts. They have shown less ego weakness and suspiciousness. The addicts have shown significantly higher overt anxiety. NSL, New Delhi.

9202-0943 Morita, H., Nakayama, M., Kojima, H., Takeya, K., Itokawa, H., Schenkel, E.P. , Motidome, M.(Department of Pharmacognosy, Tokyo College of Pharmacy, Horinouchi 1432-1, Hachioji 192-03, Japan) **Structures and cytotoxic activity relationship of casearins, new clerodane diterpenes from Casearia sylvestris Sw..** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 693-697, 1991 (6 ref, Eng).

Casearins G-R, new cytotoxic clerodane diterpenes have been isolated from the leaves of *C.sylvestris*. Their structures have been elucidated by spectroscopic methods and chemical conversions, and their structure-activity relationships have been discussed.

9202-0944 Mukherjee, T.(PID, Dr. KS Krishnan Marg, New Delhi 110012, India) **Antimalarial herbal drugs. A review.** *Fitoterapia*, v. 62(3): p. 197-204, 1991 (78 ref, Eng).

Chemistry, pharmacology and clinical status of herbal drugs used to treat malaria have been reviewed. Although the number of plants used in folklore is quite large, only the genera *Cinchona, Artemisia, Alstonia* and, *Swertia* have been reported to contain therapeutically significant antimalarial principles.

9202-0945 Nair, S.C., Panikkar, K.R.(Amla Cancer Research Centre, Amla Nagar, Trichur 680553, Kerala, India) **Cytotoxic action of Ixora javanica leaves.** *Indian Journal of Pharmaceutical Sciences*, v. 52(2): p. 125-126, 1990 (8 ref, Eng).

The cytotoxic principles of *I.javanica* separated from 50 percent ethanol extract by ethyl acetate exhibited cytotoxic activity on DLA, EAC and S-180 cells at a concentration of 30,90 and 20 micro gms respectively. The mechanism of action of the drug has been reported to be at the site of DNA synthesis.

9202-0946 Ngassapa, O.D., Soejarto, D.D., Che, C.T., Pezzuto, J.M. , Farnsworth, N.R.*(Program for Collaborative Research in the Pharmaceutical Sciences, Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois 60612, USA) **New cytotoxic lupane lactones from Kokoona ochracea.** *Journal of Natural Products*, v. 54(5): p. 1353-1359 , 1991 (20 ref, Eng).

Three new closely related lupane lactones, ochraceolides A-C, have been isolated from the nonpolar extracts derived from *K.ochracea* stem bark. Structures of all these compounds, which exhibit significant cytotoxic activity have been elucidated.

9202-0947 Onwukaeme, D.N., Lot, T.Y.(Departments of Pharmacognosy and Pharmacology and Clinical Pharmacy, Faculty of Pharmaceutical Sciences, University of Jos, P.M.B. 2084, Jos, Plateau State, Nigeria) **A pharmacological evaluation of Baphia nitida Lodd (Leguminosae) ethanolic extract on rats and mice.** *Phytotherapy Research*, v. 5(6): p. 254-257, 1991 (15 ref, Eng).

Fresh leaves of *B.nitida*(camwood) supplied by a herbalist were extracted, screened phytochemically and then subjected to various pharmacological tests. The phytochemical tests showed the presence of saponin, flavonoid glycosides and true tannins. In the dose range used, no acute toxicity was observed for the ethanolic extract. The extract showed a dose dependent antinociceptive (analgesic) activity in mice with the analgesic activity of 500 mg/kg extract being comparable to that of 300 mg/kg of acetylsalicylic acid. The extract demonstrated an antidiarrhoeal effect by protecting rats against castor oil induced diarrhoea. This was also dose related but less than the protection afforded by sodium salicylate. The extract did not demonstrate any appreciable anticonvulsant effect against strychnine-induced convulsion in rats.

9202-0948 Osim, E.E., Arthur, S.K., Etta, K.M.(Department of Physiology, College of Medical Sciences, University of Calabar, Calabar, Nigeria) **Influence of kola nuts (Cola nitida alba) on in vivo secretion of gastric acid in cats.** *International Journal of Pharmacognosy*, v. 29(3): p. 215-220, 1991 (7 ref, Eng).

Kola nuts stimulated gastric acid secretion in cats from a mean basal level of 17.1 to a peak level of 130 micro-equivalents per 10 minutes after 110 minutes. An equivalent amount of caffeine contained in the kola nuts had 42 percent of the potency of kola nuts in inducing acid secretion. Atropine and cimetidine were effective in suppressing kola nut-induced acid secretion. The results suggest that consumption of kola nuts causes an increase in gastric acid secretion which is greater than an equivalent dose of caffeine.

9202-0949 Park, M.J., Song, J.H., Kim, S.Y. , Kim, Y.C.(College of Pharmacy, Seoul National University, Seoul, 151-842, Korea) **Effects of the protein fraction of Panax ginseng on primary cultured chicken brain cells and DRG.** *Yakhak Hoeji*, v. 34(5): p. 365-373, 1990 (23 ref, Eng, Kor).

Protein fraction of *P.ginseng* was fractionated into 4 groups (A,B,C,D) according to their molecular weights. All the four protein fractions at the concentration of 100 microg/ml significantly increased the number of the brain cells which promoted the neurite outgrowth. The activity of PDHC in the brain cells was elevated significantly by the protein fraction B (mol.wt 5,000-10,000 daltons) at a concentration of 100 micro g/ml. At 100 micro g/ml protein C (1,000-5,000) and D (500-1000 daltons) significantly enhanced the synthesis of protein in the brain cells. At 100 micro g/ml, the protein fraction B enhanced RNA synthesis and the protein fraction A (more than 10,000 daltons) significantly enhanced DNA synthesis in the brain cells. The protein fractions B,C and D significantly promoted the neurite growth of DRG at 100 micro g/ml.

9202-0950 Parker, R.J., Palmer, B.(Queensland Department of Primary Industries, Oonoonba Veterinary Laboratory, PO Box 1085, Townsville, Queensland 4810) **Lack of anthelmintic effect of Calliandra calothyrsus in sheep.** *Australian Veterinary Journal*, v. 68(9): p. 309, 1991 (2 ref, Eng).

There is an evidence that *C.portoricensis* has antibacterial and anthelmintic activities. This was tested in short trial using a limited supply of *C.calothyrsus*. Eight-month old Merinowethers with naturally acquired nematode burden more fed freshly cut leaves at 0.7 kg/head for 7 days. The faecal count showed no reduction in nematode population.

9202-0951 Pathak, A.K., Saraf, S., Dixit, V.K.(Department of Pharmaceutical Sciences, Dr Harisingh Gour Vishwavidyalaya, Sagar 470 003, MP, India) **Hepatoprotective activity of Tridax procumbens. Part I.** *Fitoterapia*, v. 62(4): p. 307-313, 1991 (17 ref, Eng).

The ethanolic extract of *T.procumbens* studied for its hepatoprotective action against CCl4, demonstrated antihepatotoxic action justifying its use in liver affections.

9202-0952 Petricic, J., Osmak, M., Hadzija, M., Kalodera, Z., Slijepcevic, M.(Department of Pharmacognosy, Faculty of Pharmacy and Biochemistry, University of Zagreb, Yugoslavia) **Alkaloid concentrate from Doronicum austriacum inhibits the growth of mouse fibroblasts in** *in vitor* and the growth of mouse mammary carcinoma *in vivo*. *Acta Pharmaceutica Jugoslavica*, v. 41(2): p. 169-173 , 1991 (11 ref, Eng).

D.austriacum contains alkaloids extractable with methanol. Aqueous residue completely inhibited the proliferation of mouse fibroblasts cell cultures. Also, the test solution of bases, when injected into mice previously inoculated with homologous mammary carcinoma cells, managed to significantly extend the animals survival period.

9202-0953 Pongprayoon, U., Baeckstrom, P. , Jacobsson, U., Lindstrom, M., Bohlin, L.*(Department of Pharmacognosy, Biomedical Center, Uppsala University, Box 579, S-75123 Uppsala, Sweden) **Compounds inhibiting prostaglandin synthesis isolated from Ipomoea pes-caprae.** *Planta Medica*, v. 57(6): p. 515-518, 1991 (19 ref, Eng).

The crude extract (IPA) of the plant *I.pes-caprae* showed an inhibitory effect on prostaglandin synthesis in vitro. Bioassay-guided separation of the extract led to the isolation of four active compounds: 2-hydroxy-4,4,7-trimethyl-1(4H)-naphthalenone (1), (-)-mellein (2), eugenol (3) and 4-vinylguaiacol (4). Among the isolated compounds 3 and 4 were the most active with IC50 values of 9.2 and 18 microM, respectively. For 1 and 2 the IC50 values were 230 and 340 microM, respectively. The influence of 1,2,3 and 4 on the formation of prostaglandins may partly explain a previously observed antiinflammatory effect of the extract IPA.

9202-0954 Pongprayoon, U.(Department of Pharmacognosy, Faculty of Pharmacy, Uppsala Biomedical Centre, Box 579, S-75123 Uppsala, Sweden) **Pharmacognostic studies on the Thai medicinal plant Ipomoea pes-caprae (L.) R.Br. (Pak Bung Ta Lae).** *Acta Pharmaceutica Nordica*, v. 3(3): p. 186, 1991 (Eng).

An extract (IPA of *I.pes-caprae*, used in Thai Traditional medicine in the treatment of dermatitis caused by poisonous jelly fish, inhibited the actions of all the jelly fish toxins tested. IPA also exhibited significant antispasmodic activity in isolated guinea pig ileum and antiinflammatory activity in carrageenan-induced rat paw oedema. In vitro prostaglandin synthesis was inhibited by IPA in a concentration-dependent manner. Active constituents present in IPA have been identified as 2-hydroxy-4,4,7-trimethyl-1(4H)-naphthalenone, (-)-mellein, eugenol, 4-vinylguaiacol, E-phytol and beta-damascenone.

9202-0955 Pradhan, N.R., Misra, S.K.(Department of Veterinary Medicine and Public Health Bidhan Chandra Krishi Viswavidyalaya, Mohanpur Nadia 741253, WB, India) **Blood chemical changes in experimental hepatic disorders and its therapy with Liv 52 in goats.** *Indian Veterinary Journal*, v. 68(11): p. 1062-1066 , 1991 (18 ref, Eng).

Liv 52, a herbal composite drug was administered to treat experimentally induced hepatic disorders in goats @ 3 gm BDS for 6 days. The results indicated that Liv 52 worked as a good liver tonic for goats.

9202-0956 Qureshi, S., Shah, A.H., Al-Yahya, M.A., Ageel, A.M. (Research Centre, College of Pharmacy, King Saud University, PO Box 2457, Riyadh 11451, Saudi Arabia) **Toxicity of Achillea fragrantissima and Thymus vulgaris in mice.** *Fitoterapia*, v. 62(4): p. 319-323, 1991 (27 ref, Eng).

Acute (24 h) and sub-chronic (3 months, 100 mg/kg/os) toxicity studies on the ethanolic extracts of *A.fragrantissima* and *T.vulgaris* carried out in mice, exhibited external morphological changes, spermatogenic dysfunction besides effect on body and vital organ weight. Both the extracts caused no significant mortality as compared to the control. The weight gain did not differ from the controls in both the groups. *T.vulgaris* treatment induced a significant increase on liver and testes weight. Both the extracts failed to ilicit any spermatotoxic effect.

9202-0957 Sethi, N., Singh, R.K., Sinha, N. , Bhatia, G.S., Srivastava, S., Roy, A.K.(Division of Toxicology, CDRI, Lucknow 226001, UP, India) **Safety evaluation studies on a new hepatoprotective agent, picroliv in rats and**

monkeys. *Biological Memoirs*, v. 17(3): p. 57-76, 1991 (5 ref, Eng).

Picroliv is an iridoid glycoside mixture of Picroside I and Kutkoside obtained from the plant *Picrorhiza kurroa* (root and rhizome). The effect of 90-days oral administration of a new hepatoprotective agent was carried out. None of the toxicity parameters-general observable behaviour, growth rate, haemogram, biochemistry and histopathology in test animals revealed any significant change as compared to control animals. Thus it was concluded that the agent was non-toxic to rats and monkeys and was recommended for critical trials in humans. NSL, New Delhi.

9202-0958 Shanmugasundaram, E.R.B., Gopinath, K.L. , Shanmugasundaram, K.R., Rajendran, V.M.(Department of Biochemistry, Postgraduate Institute of Basic Medical Sciences, University of Madras, Taramani Campus, Madras 600113, TN, India) **Possible regeneration of the islets of langerhans in streptozotocin-diabetic rats given Gymnema sylvestre leaf extracts.** *Journal of Ethnopharmacology*, v. 30(3): p. 265-279 , 1990 (19 ref, Eng).

Two water soluble extracts, GS3 and GS4, obtained from the leaves of *G.sylvestre*, were tested in streptozotocin treated rats. In these diabetic rats, fasting blood pressure glucose levels returned to normal after 60 days of GS3 and after 20 days of GS4 oral administration. In oral glucose tolerance tests GS3 and GS4 therapy led to a rise in serum insulin to levels closer to normal fasting levels. In diabetic rat pancreas, both GS3 and GS4 were able to double the islet number and beta cell number. This herbal therapy appears to bring about blood glucose homeostasis through increased serum insulin levels provided by repair/regeneration of the endocrine pancreas. NML, New Delhi.

9202-0959 Sharma, A., Chakraborti, K.K. , Handa, S.S.*(Department of Pharmaceutical Sciences, Panjab University, Chandigarh 160 014, Punjab, India) **Antihepatotoxic activity of some Indian herbal formulations as compared to silymarin.** *Fitoterapia*, v. 62(3): p. 229-235, 1991 (44 ref, Eng).

Antihepatotoxic activity of 18 Indian commercial herbal formulations was compared with the known hepatoprotective natural product silymarin, (obtained from *Silybum marianum*), in rats intoxicated with CCl4. The activity was monitored by evaluating serum transaminases. Silymarin (100 mg/kg. i.p. for 4 days) exhibited complete normalisation of CCl4 induced increase of the transaminases and Kalmegh compound, livergen and stimuliv at a dose of 0.8 ml/kg, i.p. for 4 days, have been found as effective as silymarin.

9202-0960 Sharma, D.K., Hall, I.H.*(Division of Medicinal Chemistry and Natural Products, School of Pharmacy, University of North Carolina, Campus Box Square 7360, Chapel Hill, North Carolina 27599, USA) **Hypolipidemic, anti-inflammatory, and antineoplastic activity and cytotoxicity of flavonolignans isolated from Hydnocarpus wightiana seeds.** *Journal of Natural Products*, v. 54(5): p. 1298-1302 , 1991 (29 ref, Eng).

Flavonolignans isolated from *W.wightiana* seeds, namely hydnowightin, hydnocarpin and neohydnocarpin, demonstrated potent hypolipidaemic activity in mice, lowering both serum cholesterol and triglyceride levels at 8 mg/kg/day ip. Hydnocarpin exhibited good antiinflammatory and antineoplastic activity in mice in vivo. Cytotoxicity against the growth of murine and human tissue cultured cells was also observed. All three compounds exhibited good anticancer activity against a number of cancers.

9202-0961 Sharma, M.C., Pathak, N.N.(Indian Veterinary Research Institute, Izatnagar 24312, UP, India) **Biochemical changes in experimentally induced hepatopathy in goats fed different levels of dietary protein and effect of herbal therapy.** *Indian Journal of Animal Sciences*, v. 61(12): p. 1269-1275, 1991 (22 ref, Eng).

Studies were conducted to evaluate the biochemical changes in carbon tetrachloride induced hepatopathy in goats fed 3 different levels of protein and their treatment with composite herbal drug. The results showed that low protein diet provided more protection to liver tissue against CCl4 injury, also, response of the treatment with hepatotonic drug was quicker in low protein fed goats.

9202-0962 Sharma, R.K., Srivastava, D.N. , Shrivastava, A.B. (Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Acute and chronic toxicity of teeburb in albino rats.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 9-12 , 1991 (10 ref, Eng).

Teeburb has been found to be safe drug, and LD50 was found to be more than 2000 mg/kg body wt. No toxic symptoms were noticed. Alcoholic extracts on chronic exposure for 3 weeks, at the dose level of 1000 mg/kg body wt showed significant increase in erythrocyte count and haemoglobin concentration. Aqueous extract also showed increase in coagulation time.

9202-0963 Sharma, R.K., Srivastava, D.N. , Bhatt, K.R.(Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Anti-inflammatory activity of Teeburb on chronic inflammatory process in rats.** *In-*

dian Journal of Indigenous Medicines, v. 7(2): p. 31-35, 1991 (13 ref, Eng).

The aqueous and alcoholic extracts of Teeburb have been found to produce significant antiinflammatory activity on cotton pellet induced granuloma, a chronic inflammatory process in rats. Alcoholic extract was found to be more effective as compared to aqueous extract in chronic inflammtion. Phenylbutazone also produced significant anti-inflammatory activity on cotton pellet induced granuloma. Phenylbutazone has significantly increased the anti-inflammatory activity of both the aqueous and alcoholic extracts of Teeburb as compared to their perse anti-inflammatory activity on chronic inflammatory activity.

9202-0964 Sharma, R.K., Srivastava, D.N. , Salini, Y.(Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Role of inflammatory mediators in antiinflammatory activity of Teeburb on cotton pellet induced granuloma in rats.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 13-18, 1991 (8 ref, Eng).

The possible role of inflammatory mediators in anti-inflammatory activity of Teeburb was studied by pretreating the animals with a number of antagonists of mediators viz., cycloheptadine, promethazine, cimetidine and paracetamol on chronic inflammatory model. The results indicated that maximum increase in anti-inflammatory activity of aqueous and alcoholic extracts was exhibited by cycloheptadine and as such it is suggested to be mediated through inhibition of 5-HT.

9202-0965 Sharma, R.K., Srivastava, D.N.(Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Role of mediators in anti-inflammatory activity of Teebrub on acute inflammatory process in rats.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 19-24, 1991 (8 ref, Eng).

The anti-inflammatory activity of Teeburb might be due to the endogenous 5-HT because it was increased by pretreatment with cycloheptadine. The results further revealed that cimetidine and promethazine had increased the anti-inflammatory activity of both the extracts on carrageenin induced rat paw oedema which suggested that besides 5 HT there is also the role of histamine in anti-inflammatory activity of Teeburb.

9202-0966 Sharma, R.K., Srivastava, D.N. , Sahni, Y.P.(Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Anti-inflammatory activity of Teeburb on carrageenin induced rat paw oedema.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 25-29, 1991 (11 ref, Eng).

Alcoholic extract of Teeburb has been found to produce significant anti-inflammatory activity at 2nd and 3rd hours of administration on carrageenin induced rat paw oedema. Phenylbutazone has been found to be having significantly higher anti-inflammatory activity than Tueeburb suggesting similar mechanism of action of these drugs.

9202-0967 Singh, G.B., Singh, S., Bani, S. , Malhotra, S. (Pharmacology Department, Regional Research Laboratory, Canal Road, Jammu-Tawi 180001, JK, India) **Hypotensive action of a Coscinium fenestratum stem extract.** *Journal of Ethnopharmacology*, v. 39(2): p. 151-155 , 1990 (7 ref, Eng).

A 50 percent ethanol extract of *C.fenestratum* stem material (AECF) exhibited hypotensive activity in anaesthetised dogs, rats and guinea pigs in a dose-related pattern. AECF failed to exhibit any hypotension when administered via cannula into the lateral cerebral ventricle. Given orally to mice, AECF did not exhibit grossly observable central nervous effects upto doses of 800 mg/kg. The oral LD50 was 1200 mg/kg in mice. NML, New Delhi.

9202-0968 Singh, V., Kapoor, N.K., Dhawan, B.N.(Biochemistry Division and ICMR Centre for Advanced Pharmacological Research on Traditional Remedies, Central Drug Research Institute, Lucknow 226001, UP, India) **Effect of picroliv on protein and nucleic acid synthesis.** *Indian Journal of Experimental Biology*, v. 30: p. 68-69 , 1992 (12 ref, Eng).

Oral administration of picroliv, a standardised fraction of roots and rhizomes of *Picrorhiza kurroa* showed stimulation of nucleic acid and protein synthesis in rat liver. Results are comparable with a standard hepatoprotective agent, silymarin.

9202-0969 Sivaswamy, S.N.(Isotope Division, Cancer Institute Adyar, Madras 600 020, TN, India) **Vegetable tannins and carcinogenesis.** *Advances in Plant Sciences*, v. 4(1): p. 23-34, 1991 (66 ref, Eng).

Tannin containing plant extracts are carcinogenic in experimental animals. Tannins are also mutagenic as evidenced in the short term assays. Tannins developed sarcomas at injection site in treated animals. Tanninless plant extracts did not induce any tumour. The role of tannins in tumour progression is discussed in this review.

9202-0970 Song, J.H., Park, M.J., Kim, E. , Kim, Y.C.(College of Pharmacy, Seoul National University, Seoul 151-742, Korea) **Effects of Panax ginseng on glactosamine-induced cytotoxicity in primary cultured rat**

hepatocytes. *Yakhak Hoeji*, v. 34(5): p. 341-347, 1990 (19 ref, Eng, Kor).

P.ginseng was fractionated into four protein fractions and two dammarane glycoside fractions (panaxadiol and panaxatriol glycosides). A significant lowering action on the elevated glutamic pyruvic transaminase (GPT) activity in the cultured medium of hepatocyes treated with 1.5 mM galactosamine (Gal N) was noticed with all four protein fractions at 50 micro g/ml and 100 micro g/100 ml concentrations. However, the effect of dammarane glycoside fractions was not significant. Addition of 100 micro g/ml of protein fractions smaller than 5,000 dalton significantly enhanced the syntheses of protein and RNA in the damaged hepatocytes induced by the treatment of 1.5 mM GalN. Dammarane glycosides fractions significantly enhanced protein synthesis at the concentration at 100 micro g/ml in the damaged hepatocytes by the treatment of 1.5 mM Gal N.

9202-0971 Speisky, H., Squella, J.A. , Nunez-Vergara, L.J. (Laboratory of Pharmacology & Electrochemistry, Faculty of Chemical & Pharmacological Sciences, University of Chile, PO Box 233, Santiago, Chile) **Activity of boldine on rat ileum.** *Planta Medica*, v. 57(6): p. 522, 1991 (21 ref, Eng).

Boldine extracted from the bark of *Peumus boldus*, showed a concentration-dependent relaxation effect on the rat ileum preparation with a pD2 of 3.77+-0.12. and also produced a concentration-dependent parallel shift of the curve-response to acetylcholine, therefore it directly interferes with the cholinergic mechanism associated with the contraction, behaving as a competitive antagonist with a pA2 of 4.78+-0.19. On the other hand, boldine produces a non-parallel shift of the contraction response induced by barium, revealing the occurrence of a non-competitive antagonism. This effect could be the result of interference with intracellular events associated with the barium-induced changes in calcium pools.

9202-0972 Sreedharan, N.(Department of Panchakarma, Aragyadham, Maharshi Nagar, PO, UP, India) **The treatment of amavata.** *Aryavaidyan*, v. 5(1): p. 19-26, 1991 (Eng).

Arthritis (Sandivata) can be best treated by making use of certain set of curative therapy like fasting, administration of decoction of *Vitex negundo* prepared with Panchakola along with castor in early morning. The alleviation therapy with Rasnasaptaka decoction or Madhyama rasnadi decoction also been recommended. Oleations therapy has recommended for chronic cases, followed by sudation therapy by administering *Operculina turpenthum* powder. Bitter fruits such as *Trichosanthes diocea*, *Chenopodium album*, *Azadirachta indica*, *Tribulus terresteris*, *Cratera nurvala* and *Boerhaavia diffusa* are considered beneficial. Other special preparations for the amavata, include drugs of the plants *Biophytum sensitivum*, *Tribulus terrestris*, *Anethum graveolens*, *Paederia foetida*, *Citrullus colocynthus*, *Zingiber officinale* and *Randia dumetorum* Siddamala is also best diet for amavata disease. NSL, New Delhi.

9202-0973 Sreejayan, Rao, M.N.A.(Department of Pharmaceutical Chemistry, College of Pharmaceutical Sciences, Manipal 576119, Karnataka, India) **Oxygen free radical scavenging activity of the juice of Momordica charantia fruits.** *Fitoterapia*, v. 62(4): p. 344-346, 1991 (12 ref, Eng).

Fruit juice of *M.charantia* was found to be a potent scavenger of superoxide and hydroxyl radicals. Since these oxygen radicals are implicated in diabetics, the reported antidiabetic action of *M.charantia* has been suggested to be mediated through this mechanism.

9202-0974 Terao, J., Suzuki, A.N., Yamazaki, M.(National Food Research Institute, Ministry of Agriculture, Forestry and Fisheries, Tsukuba, Ibaraki 305, Japan) **Effect of dietary fats (perilla oil, lard, rapeseed oil) on peroxidizability of mouse brain lipids.** *Journal of Agriculture and Food Chemistry*, v. 39(8): p. 1477-1481, 1991 (42 ref, Eng).

The effect of dietary fats (perilla oil, lard, and rapeseed oil) on the susceptibility of brain lipids to lipid peroxidation in male ICR mice was investigated. The brain weight and the brain lipid content were not changed by the intake of diet containing 6 percent (by weight) different dietary fats after a 15-month feeding period. The number of bisallylic hydrogens of brain lipids was significantly increased by the intake of alpha-linolenic acid rich perilla oil. The concentration of alpha-tocopherol in the brain lipids from the mice fed perilla oil containing diet was also higher than those from the mice fed rapeseed oil containing diet and the mice fed standard chow diet. Intake of perilla oil has little effect on the lipid peroxidation status of the brain homogenates, as measured by thiobarbituric acid assay and the rate of oxygen absorption induced by a free-radical initiator. It is therefore suggested that dietary intake of perilla oil does not elevate the susceptibility of brain lipids toward free radical driven lipid peroxidation in spite of its lability to oxidative deterioration, when dietary alpha-tocopherol is sufficiently supplied.

9202-0975 Terencio, M.C., Sanz, M.J., Paya, M.*(Farmacognosia of Farmacodinamia, Departamento de Farmacologia y Farmacoteenia, Facultad de Farmacia, Universitat de Valencia, Avda, Blasco Ibaiez 13,46010 Valencia, Spain) **A hyptoensive procyanidin-glycoside**

from Rhamnus lycioides ssp. lycioides. *Journal of Ethnopharmacology*, v. 30(2): p. 205-214 , 1990 (20 ref, Eng).

A lyophilized hot water extract of the aerial parts of *R.lycioides* produced a lowering of systemic arterial blood pressure in normotensive anaesthetized wistar rats. An activity guided fractionation of the methanolic extract led to the isolation of a tetrameric procyanidin-glycoside which produced a clear dose-dependent hypotensive response (1.5-6 mg/kg u.v). The active principle consisted of four flavanol units with a 2,3-cis configuration and with a O-beta-D-glucosylpyranoside function on the epicatechin terminal unit. The interflavan linkage was (4-8). NML, New Delhi.

9202-0976 Toda, S., Kimura, M., Ohnishi, M.(Department of Pharmaceutical Science, Institute of Medical Science, Kansai Shinkyu Medical College, 990 Ogaito, Kumatori, Sennan, Osaka 590-04, Japan) **Induction of neutrophil accumulation by red ginseng.** *Journal of Ethnopharmacology*, v. 30(3): p. 315-318 , 1990 (13 ref, Eng).

Intraperitoneal injection of 2 mg/kg of the aqueous extract of roots of *Panax ginseng* increased the accumulation of neutrophil in peritoneal exudates of mice. The ratio of neutrophil accumulation reached maximum (39.2+-2.3 percent) at +3h and decreased thereafter. It has been demonstrated that *P.ginseng* may be classified as biological response modifier (BRM) since its ration of neutrophil accumulation patterns were similar to that of lentian. NML, New Delhi.

9202-0977 Toyokawa, S., Takeda, T., Ogihara, Y.*(Faculty of Pharmaceutical Sciences, Nagoya City University, Tanabe-dori, Mizuho-ku, Nagoya 467, Japan) **Isolation and characterization of a new abortifacient protein, karasurin, from root tubers of Trichosanthes kirilowii Max. var japonicum Kitam..** *Chemical Pharmaceutical Bulletin*, v. 39(3): p. 716-719 , 1991 (19 ref, Eng).

A new abortifacient protein, named karasurin, was isolated from fresh root tubers of *T.kirilowii* var *japonicum* (Japanese name: kikarasuuri) by the procedure involving acetone fractionation and ion-exchange chromatography on Toyopearlpak SP 650S. Homogeneity of Karasurin was demonstrated by sodium dodecyl sulfate (SDS)-polyacrylamide gel electrophoresis, and HPLC. Karasurin was a highly basic protein of pI 10.1 and the molecular weight was estimated as 28000 by SDS-polyacrylamide gel electrophoresis. A single intraperitoneal injection of a dose of 2.5 mg/kg of Karasurin on day 12 post coitum induced abortion in all pregnant mice.

9202-0978 Udupa, A.L., Udupa, S.L., Guruswamy, M.N.(Department of Pharmacology, Kasturba Medical College, Manipal 576 119, Karnataka, India) **The possible site of anti-asthmatic action of Tylophora asthmatica on pituitary-adrenal axis in albino rats.** *Planta Medica*, v. 57(5): p. 409-413, 1991 (15 ref, Eng).

The effects of the alcoholic extract, the petroleum ether fraction, and the aqueous fraction of the alcoholic extract of *T.asthmatica* on weight of the adrenal gland and its functional activities and pituitary-adrenal axis were not studied using normal, unilaterally adrenalectomised, dexamethasone-treated and stereotaxically hypophysectomised male albino rats. The extracts showed stimulation of adrenals. The plasma steroid level was increased but skin hydroxyproline level findings were not conclusive. *T.asthmatica* was found to antagonise dexamethasone/hypophysectomy-induced suppression of pituitary on activity of the adrenals. It may be concluded that *T.asthmatica* may act by a direct stimulation of the adrenal cortex.

9202-0979 Unander, D.W., Webster, G.L. , Blumberg, B.S.(Division of Population Science, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111, USA) **Records of usage or assays in Phyllanthus (Euphorbiaceae) I. subgenera isocladus, kirganelia , Cicca and Emblica.** *Journal of Ethnopharmacology*, v. 30(3): p. 233-264 , 1990 (175 ref, Eng).

References to either indigenous uses or the results of controlled assays are numerous for species of Phyllanthus. These citations have been arranged by subgenus, section, subsection and species. This paper, the first of the series, covers the subgenera Isocladus, Kirganelia, Cicca and Emblica.

9202-0980 Ushio, Y., Abe, H.(The Research Institute of Oriental Medicine, Kinki University, Osaka 589, Japan) **The effects of saikosaponin on macrophage functions and lymphocyte proliferation.** *Planta Medica*, v. 57(6): p. 511-514, 1991 (20 ref, Eng).

The macrophoges treated with saikosaponin-d (ssd), isolated from Bupleurum (*Bupleurum falcatum*) radix showed a significant increase in phorbol myristate acetate-induced chemiluminescence. An increase in phagocytosis was detected after treatment with saikosaponin-b2 (0.1 microM) for 24 h in vitro, while a suppression of phagocytosis was observed following treatment with saikosaponins (0.5 microM). Treatment with ssd markedly increased the random migration of resident peritoneal macrophages, but did not affect the migration towards N-formylmethionyl-leucyl-phenylalanine. The effect of ssd on proliferative response of spleen cells was further investigated and it was found that ssd, which itself has no mitogenic activity, decreased spleen cell proliferative

response to T-cell mitogen, but increased the response to B-cell mitogen.

9202-0981 Valli, M., Paubert-Braquet, M. , Picot, S., Fabre, R., Lefrancois, G. , Rod, D.(Service de Pharmacologie Chnique du Systeme Nerveux et Psychiartrie Biologique, Faculte de Medecine, 27 Blvd Jean-Moulin, 13385 Marseille Cedex 5, France) **Euphytose, an association of plant extracts with anxiolytic activity: investigation of its mechanism of action by an in vitro binding study.** *Phytotherapy Research*, v. 5(6): p. 241-244, 1991 (20 ref, Eng).

The present results show that the association of plant extracts, Euphytose (*Passiflora incarnata, Valeriana officinalis, Cola vitida*), interacts with central benzodiazepine (BDZ) receptors, alpha-2 adrenoceptors and muscarinic MI receptors with respective IC50 values of 37.1, 3.6 and 30.0 microg/mL. In contrast, Euphytose does not show any interaction with peripheral BZD, 5-HT1 and 5HT2 serotoninergic, alpha-1 adrenergic, DA1 and DA2 dopaminergic and M2 muscarinic receptors. The present in vitro binding data demonstrate clearly the different interactions of Euphytose with various neurotransmitter binding sites in the central nervous system. This is of importance in order to elucidate the mechanism of action of the putative anxiolytic and/or antidepressant effect of this drug.

9202-0982 van Rietschoten, K.(Green Door, Crowlink, Friston, Sussex BN 200 AY, UK) **Plants with anti-inflammatory action.** *British Journal of Phytotherapy*, v. 1(3/4): p. 11-18 , 1990 (35 ref, Eng).

A large number of herbs have been shown by experiments to have an anti-inflammatory activity. Thus activity is usually weaker than that of steroids or non-steroidal anti-inflammatory drugs. In clinical practice, however,herbal treatment has been found to be as effective as orthodox medicine. This may be because of the synergistic effect of the multidrug preparations which are prescribed by herbalists and also by the approach towards the treatment of inflammation. Important antiinflammatory plants use are *Matricaria recutita, Ananas comosus, Aesculus hippocastanum* and *Mollugo cerviana* and *Enicortemma littorrale*.

9202-0983 Virgili, A., Corazza, M.(Clinica Dermatologica, Universita degli Studi di Ferrara, Via Savonarola, 44100 Ferrara, Italy) **Unusual primin dermatitis.** *Contact Dermatitis*, v. 24(1): p. 63-64, 1991 (4 ref, Eng).

Case of a 60-year-old woman with an acute, painful, itchy dermatitis of the hands and face has been described. On patch tests she showed sensitivity to primin.

9202-0984 Wallengren, J., Ekman, R., Moller, H.*(Department of Dermatology, General Hospital, S-21401 Malmo, Sweden) **Capsaicin enhances allergic contact dermatitis in the guinea pig.** *Contact Dermatitis*, v. 24(1): p. 30-34, 1991 (14 ref, Eng).

Guinea pigs were sensitized to dinitrochlorobenzene by the intracutaneous route and challenged epicutaneously on the flanks. The intensity of the allergic contact dermatitis was evaluated by inspection and palpation as well as by wet weight determination. With the purpose of diminishing tissue neuropeptides and substance P in particular, the animals were treated with capsaicin either between induction and challenge, or before sensitization. In comparison with controls, the contact dermatitis was enhanced in both groups of animals treated with capsaicin.

9202-0985 Wojcicki, J., Samochowiec, L. , Kadlubowska, D. (Institute of Pharmacology and Toxicology, Medical Academy, Powstancow Wielkopolskich 72, 70-111 Szczecin, Poland) **The influence of pollen extracts on biochemical disturbances in rats exposed to prolonged ethyl alcohol intake.** *Herba Polonica*, v. 35(4): p. 201-206, 1989 (Recd. 1991, 20 ref, Eng).

Influence of certain pollen preparations viz., (Cernitins, obtained from AB Cernelle, Vegeholm, Sweden) on biochemical parameters in the blood serum and liver homogenate of rats exposed to prolonged ethyl alcohol intake, has been studied. The level of total lipids of bilirubin in blood serum and the content of total lipids and triglycerides in liver were found to decrease. The possible use of pollen extracts in the treatment of plasma and hepatic biochemical disturbances under the influence of alcohol should be given due consideration.

9202-0986 Xiao, D.M., Wang, X.L., Zhang, J.B. , Chen, H.C. (Department of Pathophysiology, Peking Union Medical College, Beijing 100730, China) **Effects of gossypol on phorbol ester-calcimycin-induced prostaglandin synthesis by macrophages.** *Chinese Medical Journal*, v. 104(4): p. 321-325, 1991 (7 ref, Eng).

Racemic, (-) and (+)-gossypol in a dose dependent manner inhibited phorbol-12-myristate-13-acetate or calcimycin-induced synthesis of prostacyclin, thromboxane A2 and prostaglandin F2 alpha, but failed to affect arachidonic acid-induced synthesis of prostaglandin. Both (-)-gossypol and (+)-gossypol were found to inhibit syntheis of prostaglandin at the level of arachidonic acid release.

9202-0987 Yagi, T., Nishikawa, A., Horiyama, S., Miyawaki, Y., Yamauchi, K., Kuwano, S.*(Faculty of Pharmaceutical Sciences, Mukogawa Women's University, 11-68, Koshien Kyuban-cho, Nishinomiya, Hyogo 663,

Japan) **Characterization of the prostaglandin produced due to stimulation by Rhein anthrone, the active metabolite of sennosides A and B, in mouse colonic tissue.** *Shoyakugaku Zasshi*, v. 45(2): p. 163-166, 1991 (9 ref, Eng).

The amount of prostaglandin (PG) E-like material was increased in the mouse colonic tissue after the intracaecal administration of rhein anthrone which is the active metabolite of sennosides A and B purgative principles of senna *Cassia* sp and rhubarb, *Rheum* sp. This PGE-like material, which mediated the purgative action, was identified as PGE2 using GC/SIM.

9202-0988 Yang, C.S., Wang, J.L., Zhang, Z.L.*, Kouno, I.(Faculty of Chinese Pharmacy, Beijing College of Traditional Chinese Medicine, Beijing 100 029, China) **Studies on the toxic constituents of Illicium simonsii Maxim.** *Acta Pharmaceutica Sinica*, v. 26(2): p. 128-131, 1991 (4 ref, Chi, Eng).

A new sesquiterpenelactone compound was isolated along with the known anisatin and shikimic acid from pericarps of the fruit of *I.simonsii*, collected in Sichuan province. This new compound exhibited high toxicity in mice. The structure of which was elucidated as 2-oxo-6-deoxyneoanisatin based on spectral evidences. The detailed physical and chemical data were presented.

9202-0989 Yang, X.W., Gu, Z.M.*, Wang, B.X. , Hattori, M., Namba, T.(Research Institute for Wakan-Yaku (Traditional Sino-Japanese Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama, 930-01, Japan) **Comparison of anti-lipid peroxidative effects of the underground parts of Notopterygium incisum and N.forbesii in mice.** *Planta Medica*, v. 57(5): p. 399-402, 1991 (12 ref, Eng).

Intraperitoneal administration of CCl4 to mice led to significant increases of thiobarbituric acid reactive substances, free malondialdehyde, lipid conjugated dienes and fluorescent lipid peroxidation products in the liver. However, subchronic pretreatment with oral doses of the MeOH extract of either the underground part of *N.incisum* or that of *N.forbesii* appreciably suppressed the formation of CCl4-induced lipid peroxidation products. The suppressing potency was more remarkable in the former.

9202-0990 Yano, S., Horiuchi, H., Horie, S. , Aimi, N., Sakai, S.I., Watanabe, K.(Department of Drug Evaluation and Toxicological Sciences, Faculty of Pharmaceutical Sciences, Chiba University 1-33 Yayoi-cho, Chiba 260, Japan) **Ca2+channel blocking effects of hirsutine, an indole alkaloid from Uncaria genus, in the isolated rat aorta.** *Planta Medica*, v. 57(5): p. 403-405, 1991 (17 ref, Eng).

Hirsutine produced a dose-dependent relaxation of the isolated rat aorta contracted by norepinephrine and high K+ concentration. This effect was exhibited in the aorta strips with or without the endothelium, suggesting an involvement of vasodilative mechanisms not dependent on the endothelium. Hirsutine also inhibited the contractions induced by serotonin and Ca2+ channel activator YC-170, but not by Ca2+ ionophore A23187. It is concluded that hirsutine apparently exhibits Ca2+ channel blocking activity mainly through inhibition of the voltage-dependent Ca2+ influx.

9202-0991 Yu, D.F., Hu, B.H., Chen, G.P. , Yang, C.X., Yang, J., Xu, J.Y. , Li, L.Z.(Wuhan General Hospital, Wuhan 430070, China) **Structure revision of triptophenolide.** *Acta Pharmaceutica Sinica*, v. 25(12): p. 929-931 , 1990 (7 ref, Eng).

A diterpenoid-lactone (C20H24O3 mp 222 to 223 degree C), has been isolated from the ethyl acetate extract of the roots of *Tripterygium wilfordii* in a yield of 0.025 percent. Its structure was elucidated by spectral analysis and X-ray SCD. It is the known triptophenolide with revision of structure. Triptophenolide was shown to have inhibiting effects on lymphocyte and IgG (P) when mice and rats were given ig 1.5 mg/kg. The total complements in blood serum was increased. When BALB/C mice were given ig 1.5 mg/kg, the ear oedema induced by dimethyl benzene was significantly inhibited. The ear oedema induced by croton oil in SD rats at a dose of ig 1.0 mg/kg was also significantly inhibited. The vitamin C content of the adrenal gland was reduced in mice at a dose of 1.5 mg/kg. The ig LD50 of triptophenolide was greater than 30 mg/kg.

9202-0992 Zafar, M.M., Hamdard, M.E., Hameed, A.(Department of Microbiology, Faculty of Science, Jamia Hamdard (Hamdard University), New Delhi 110062, India) **Screening of Artemisia absinthium for antimalarial effects of Plasmodium berghei in mice: a preliminary report.** *Journal of Ethnopharmacology*, v. 30(2): p. 222-226 , 1990 (10 ref, Eng).

The aqueous and alcoholic leaf extracts of *A.absinthium* exhibited definite schizontocidal activity in a four-day test against a chloroquine-sensitive strain of *P.berghai* in mice. The alcoholic extract was administered orally, subcutaneously and intraperitoneally whereas the aqueous extract was given only orally. The highest suppression of parasitaemia was observed with alcoholic extract given orally at the 74 mg/kg dose level. NML, New Delhi.

9202-0993 Zarzuelo, A., Duarte, J.*, Jimenez, J., Gonzalez, M., Utrilla, M.P.(Department of Pharmacology, School of Pharmacy, University of Granada, E-18071 Granada, Spain) **Vasodilator effect of olive leaf.** *Planta Medica*, v. 57(5): p. 417-419, 1991 (15 ref, Eng).

The importance of the smooth vascular muscle endothelium in the vasodilator action of the decoction of olive *O.europaea* leaf has been studied. The decoction caused relaxation of isolated rat aorta preparations both in the presence and in the absence of endothelium. The results indicate that the relaxant activity of the lyophilized decoction is independent of the integrity of the vascular endothelium. Oleuropeoside is considered a component, responsible for vasodilator activity but, from the results, it seems likely that at least one other principle is to be found in the olive leaf which is either a vasodilator itself or else potentiates the relaxant effect of oleuropeoside.

9202-0994 Zhang, J., Zhang, H.Y., Du, W.Y.(The Third Clinical Medical College, Bethune University of Medical Sciences, Changchun 130021, China) **Effect of ginsenopolypeptide on the 3H-Td R integration of human blood lymphocyte.** *Chinese Medical Journal*, v. 104(5): p. 399-401, 1991 (5 ref, Eng).

The effect of ginsenopolypeptide on 3H-TdR integration in normal human blood lymphocytes in vitro with micro blood culture method of 3H-TdR integration. The results indicated that this integration which can be activated phytoagglutinin was enhanced at low dosage and inhibited at high dosage.

9202-0995 Zhang, Z.L., Wen, Q.Z., Liu, C.X.*(Tianjin Institute of Pharmaceutical Research, The State Pharmaceutical Administration of China, 308 An-Shan West Road, 300193 Tianjin, People's Republic of China) **Hepatoprotective effects of astraglus root.** *Journal of Ethnopharmacology*, v. 30(2): p.145-149 , 1990 (7 ref, Eng).

Oral administration of an ethanol extract of the root of *Astragalus membranaceus* alleviated liver injury induced by stilbenemidine. Pre-administration in mice reduced elevated SGPT levels and subacute toxicity of stilbenemidine, decreased pentobarbital-induced loss of righting reflex and protected hepatic cells from pathological changes. NML, New Delhi.

9202-0996 Zhu, Z.J., Zhong, Z.C., Luo, Z.Y. , Xiao, Z.Y.(Sichaan Institute of Chinese Materia Medica, Chongqing 630065, China) **Studies on active constituents of Momordica charantia.** *Acta Pharmaceutica Sinica*, v. 25(12): p. 898-903 , 1990 (8 ref, Chi, Eng).

Five compounds were isolated from the seeds of *M.charantia*. Their structure were determined by spectral (IR, UV, 1HNMR, 13CNMR, and MS) and chemical methods. The structures of I,II,III,IV and V were elucidated as vicine, mycose, 3-O-(beta-D-glucopyranosyl)-24beta-ethyl-5alpha-cholesta-7, trans-22E,25(27)-trien-3beta-ol, momorcharaside A and momorcharaside B respectively. Mycose was found for the first time in this plant and compound III was found for the first time in the genus *Momordica*.IV and V were new compounds. IV exhibited inhibition of DNA and RNA syntheses in S180 tumor cells in preliminary pharmacological studies.

9202-0997 Zitterl-Eglseer, K., Jurenitsch, J. , Korhammer, S., Haslinger, E., Sosa, S. , Loggia, R., Kubelka, W., Franz, Ch.(Institut fur Pharmakognosie der Universitat Wien, Wahringer Strasse 25, A-1090 Wien, Austria) **Sesquiterpene lactones of Achillea setacea with antiphlogistic activity.** *Planta Medica*, v. 57(5): p. 444-446, 1991 (23 ref, Eng, Ger).

From the aerial parts of *A.setacea*, the main sesquiterpenes were isolated. Their structures were determined by means of 2D-NMR and MS as 11,13-dehydrodeacetylmatricarin (1) (=14-deoxylactucin), rupicolin A (2), and rupicolin B (3). These are the first compounds with an alpha-methylene-gamma-lactone structure isolated from a species belonging to the *A.millefolium* aggregate. Achillicin, achillin, 8-hydroxyachillin, 8-acetoxyachillin, and matricin could not be detected. For both rupicolin B and 11,13-dehydrodeacetylmatricarin an anti-inflammatory activity was found in the croton oil ear test.

9202-0998 Zong, Y., Lowell, K., Jiang, P. , Che, C.*, Pezzuto, J.M/., Fong, H.H.S.(Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy, University of Illinois at Chicago, Illinois 60680, USA) **Phenolic constituents of Rhodiola coccinea, a Tibetan folk medicine.** *Planta Medica*, v. 57(6): p. 589, 1991 (7 ref, Eng).

Related chromatography of the EtOAc-fraction of roots of *R.coccinea* led to the isolation of gallic acid, salidroside, and 2,6-dimethoxyacetophenone-4-O-beta-D-glucose, each identified by interpretion of the spectral data (1H-NMR, UV, IR mass) and comparison with literature values. Gallic acid displayed cytotoxicity in both HT-1080 and P-388 systems (ED50;S 4 and 2 micro g/ml, respectively. On the other hand, salidroside and 2,6-dimethoxyacetophenone-4-O-beta-D-glucoside were devoid of any significant activity in these cell lines.

Antimicrobial Activity

9202-0999 Alankararao, G.S.J.G., Baby, P. , Rajendra Prasad, Y. (Division of Organic Chemistry, Govt.(PG) College, Andhra University, Rajahmundry, 533 105, AP, India) **Leaf oil of Coleus amboinicus Lour: the in vitro antimicrobial studies.** *Perfumerie und Kosmetik*, v. 72(11): p. 744-745, 1991 (18 ref, Eng).

Volatile oil isolated from the leaves of *C.amboinicus* exhibited varying degree of antimicrobial activity against a number of pathogenic and non-pathogenic fungi and bacteria.

9202-1000 Bories, C., Loiseau, P., Cortes, D.*, Myint, S.H., Hocquemiller, R., Gayral, P. , Cave, A., Laurens, A.(Laboratoire de Pharmacognosie, Faculte de Medecine et de Pharmacie, Universite de Rouen, F-76800 Saint Etienne du Rouvray, France) **Antiparasitic activity of Annona muricata and Annona cherimolia seeds.** *Planta Medica*, v. 57(5): p. 434-436, 1991 (10 ref, Eng).

Methanolic extracts of *A.muricata* and *A.cherimolia* seeds were tested for antiparasitic activity against *E.histolytica, N.brasiliensis, M.dessetae* and *A.salina*. The acetogenins isolated from these extracts are found to be responsible for the important activity on infective larvae of *Molinema dessetae*.

9202-1001 Chakraborty, U., Dutta, K. , Chakraborty, B.N.(Plant Pathology Laboratory, Center for Life Science, University of North Bengal, NBU- 734430, WB, India) **Antifungal activity of some plant extracts on phytopathogenic fungi.** *Indian Botanical Contactor*, v. 8(3): p. 107-111, 1991 (12 ref, Eng).

Antifungal activity of aqueous extract leaves of *Cymbopogon pendulus, Cannabis sativa* and *Lantana camara* was tested against Collectotrichum camelliae, Alternaria solani and Curvularia lunata by spore germination, poisoned food and agar cup bioassay methods. All the three extracts inhibited the test fungi, but the extract of *Cannabis sativa* was most effective. The ED50 values of this extract was determined against all the three test fungi. NSL, New Delhi.

9202-1002 Dayrit, I.M., Alcantar, A.D. , Villasenor, I.M. (Department of Chemistry, Ateneo de Manila University, PO Box 154, Manila, Philippines) **Studies on Moringa oleifera seeds. Part I. The antibiotic compound and its deactivation in aqueous solution.** *Philippine Journal of Science*, v. 119(1); p. 23-32 , 1990 (12 ref, Eng).

4-{alpha-Rhamnosyloxy} benzyl isothiocyanate (A) and 4-{alpha-L-rhamnosyloxy}phenylacetonitrile (B), were isolated from the raw seeds of *M.oleifera* by hot water extraction. A was found to be active against *Bacillus subtilis* but inactive against *Escherichia coli*. However, B was inactive against both organisms when left to stand in aqueous methanol solution. A decomposes and loses its activity.

9202-1003 De Godoy, G.F., Miguel, O.G. , Moreira, E.A.(Department of Microbiology, Federal University of Parana, Brasil, Coronel Dulcidio, 638 80230 Curitiba-Parana, Brazil) **Antibacterial activity of xanthoxyline, constituent of Sebastiania schottiana.** *Fitoterapia*, v. 62(3): p. 269-270, 1991 (9 ref, Eng).

Xanthoxyline, isolated from *S.schottiana* leaves, was found to possess inhibitory action against the following bacteria: Escherichia coli, Enterobacter cloaceae, Enterobacter aerogenes, Staphylococcus aurues, Staph. saprophyticus, Proteus mirabilis, Klebsiella pneumoniae and Morganella morganii.

9202-1004 Decosterd, L.A., Hoffmann, E. , Kyburz, R., Bray, D., Hostettmann, K.*(Institut de Pharmacognosie et Phytochimie, Ecole de Pharmacie, Universite de Lausanne, CH-1015 Lausanne, Switzerland) **A new phloroglucinol derivative from Hypericum calycinum with antifungal and in vitro antimalarial activity.** *Planta Medica*, v. 57(6): p. 548-551, 1991 (25 ref, Eng).

The new phloroglucinol derivative 1 has been isolated from the light petroleum ether extract of the aerial parts of *H.calycinum*. Its structure has been established by means of 1H- and 13C-NMR spectroscopy and by nOe, MHQC, and HMBC experiments on its monomethyl ether derivative. Compound 1 was fungicidal against Cladosporium cucumerinum in a TLC bioassay. In addition, this new phloroglucinol derivative was also found to exert an interesting antimalarial activity in an in vitro test system.

9202-1005 Dwivedi, S.K., Dwivedi, S.K. , Pandey, V.N., Dubey, N.K. (Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi 221 005, UP, India) **Effect of essential oils of some higher plants on Aspergillus flavus link. Infesting stored seeds of guar (Cyamopsis tetragonoloba L.(Taub.)).** *Flavour and Frangance Journal*, v. 6(4): p. 295-297 , 1991 (13 ref, Eng).

The essential oils from leaves and seeds of some angiosperms collected from different localoties of Varanasi as well as from local markets were tested against the mycelial growth of *A.flavus*. Amongst them the volatile oil from seeds of *Daucus carota* exhibited absolute toxicity against the test fungus. The minimum inhibitory concentration of the oil at which it exhibited fungistasis was 2000 ppm when it was not phytotoxic on seed germination and seedling growth of guar, *C.tetragonoloba*. It exhibited a broad fungitoxic spectrum inhibiting the mycelial growth of a number of fungi at 1500, 2000 and 2500 ppm. Moreover,

the oil was more effective than some synthetic fungicides including Agrosan G.N., copper oxychloride, Derosal, Dithane M-45 and Thiovit.

9202-1006 Gupta, M.P., Alvarez, D., Solis, P.N., Lowel, M., Achenbach, H.(Institut fur Pharmazie und Lebensmittelchemie der Friedrich-Alexander-Universitat, D-8520 Erlangen, Federal Republic of Germany) **Phytochemical and biological study of Stemmadenia minima.** *Planta Medica*, v. 57(5): p. 502-503, 1991 (10 ref, Eng).

Phytochemical study *S.minima* resulted in the isolation of the 10 ibogamine-type alkaloids. In addition, the acetates of alpha-amyrin, beta-amyrin and lupeol were isolated. Identification of these constituents was established by spectroscopy by comparison with authentic compounds. Highest variety in alkaloid content was found in the root, stem, and stem bark. In the plate diffusion test against Bacillus subtilis, coronaridine, 13hydroxy coronaridine and voacristine exhibited antibacterial activity.

9202-1007 Iwamoto, M., Uchino, K.*, Toukairin, T., Kawaguchi, K., Tatebayashi, T., Ogawara, H., Tonosaki, Y.(Central Laboratory, Nippon Flour Mills Co. Ltd., 2114-2, Nurumizu, Atsugi, Kanagawa 243, Japan) **The growth inhibition of Streptococcus mutans by 5'-nucleotidase inhibitors from Areca catechu L.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1323- 1324, 1991 (13 ref, Eng).

New 5'-nucleotidase inhibitors named NF-86I, NF-86II were isolated from the seeds of *A.catechu*. NF-86I and NF86II showed inhibitory effects on the growth of *S.mutans* MT8148(c) and *s.mutans* MT6715(g), respectively. NF-86I and NF-86II were found to be polyphenolic substances which could inhibit insoluble glucan formation from sucrose like other polyphenols. It is therefore considered that these inhibitors bind specifically to the bacterial cell surface and mas constitutes useful anti-plaque agents.

9202-1008 Jayasuriya, H., Clark, A.M. , McChesney, J.D.* (Department of Pharmacognosy and the Research Institute of Pharmaceutical Sciences, University of Mississippi, University, Mississippi 38677, USA) **New antimicrobial filicinic acid derivatives from Hypericum drummondii.** *Journal of Natural Products*, v. 54(5): p. 1314-1320 , 1991 (9 ref, Eng).

Bioactivity-guided fractionation of the hexane extract of the stems and leaves of *H.drummondii* has afforded four new filicinic acid derivatives: drummondins D-F and isodrummondin D. The structures of these compounds were established by spectroscopic methods. All compounds possessed strong antibiotic activity against *Staphylococcus aureus*, *Bacillus subtilis* and *Mycobactericum smegmatis*.

9202-1009 Kishore, N., Dwivedi, R.S.(Department of Botany, Banaras Hindu University, Varanasi 221 005, UP, India) **Fungitoxicity of the essential oil of Tagetes erecta L. against Pythium aphanidermatum Fitz. the damping-off pathogen.** *Flavour and Fragrance Journal*, v. 6(4): p. 291-294 , 1991 (10 ref, Eng).

The essential oil of the leaves of *T.erecta* exhibited complete inhibition of growth of *P.aphanidermatum*, the damping-off pathogen, at a concentration of 2000 ppm. The oil possessed a broad fungitoxic spectrum, no phytotoxicity and superiority over three synthetic fungicides, viz. Captan, Agrosan G.N. and Dithane Z-78. Moreover, during pot trials the oil indicated its efficacy for controlling the damping-off of seedlings of tomato up to 50 percent.

9202-1010 Naqvi, S.A.H., Khan, M.S.Y., Vohora, S.B.*(Departments of Microbiology, Chemistry and Pharmacology, Faculties of Science and Pharmacy, Hamdard University, (Hamdard Nagar), New Delhi 110 062, India) **Anti-bacterial, antifungal and anthelmintic investigations on Indian medicinal plants.** *Fitoterapia*, v. 62(3): p. 221-228, 1991 (15 ref, Eng).

176 Crude plant extracts and 42 purified/semipurifed principles from 64 Indian medicinal plants belonging to 37 families were screened for antibacterial, antifungal and anthelmintic effects in vitro. Antibacterial activity was observed in 149 plant principles, antifungal activity in 8 plant principles and anthelmintic activity in 2 plant principles obtained from 32 medicinal plants. Antibacterial effects were seen mostly against gram positive organisms. Antifungal effects were noted only against superficial, dermato- and sub-cutaneous mycoses. None of the plant principles tested revealed activity against systemic mycoses.

9202-1011 Owolabi, O.A., Makanga, B., Thomas, E.W., Molyneuse, D.H., Oliver, R.W.A.(Department of Biological Sciences, University of Salford, Salford, M5 4WT, UK) **Trypanocidal potential of African woody plants: in vitro trial of Khaya grandifoliola seed extracts against Trypanosoma brucei brucei.** *Journal of Ethnopharmacology*, v. 30(2): p. 227-231 , 1990 (16 ref, Eng).

Aqueous extracts of the seeds of *K.grandifolila* exhibited trypanocidal activity in vitro (IC 100 1.00 mg/ml) against *T.brucei brucei*. Limonoids are believed to be active constituents of the aqueous extracts of the seeds. NML, New Delhi.

9202-1012 Palanichamy, S., Amala Bhaskar, E. , Nagarajan, S. (Department of Pharmacology, Thanjavur Medical College, Thanjavur 613 004, TN, India) **Antibacterial activity of Cassia alata.** *Fitoterapia*, v. 62(3): p. 249-252, 1991 (21 ref, Eng).

Ethylalcohol extract of *Cassia alata* leaves showed antibacterial activity. The activity has been attributed to the presence of rhein in the leaves.

9202-1013 Ramachandraiah, P.(Department of Chemistry, S.V. Arts College, Tirupati 517 502, AP, India) **Antimicrobial activity of Dalbergia paniculata seed oil.** *Fitoterapia*, v. 62(3): p. 281, 1991 (18 ref, Eng).

D.paniculata seed oil showed no antibacterial activity against *Staphylococcus aureus, Escherichia coli* and *Pseudomonas aeruginosa*. Seed oil showed antifungal activity against *Curvularia lunata, Helminthosporium oryzae* and *Fusarium solani*.

9202-1014 Richomme, P., Godet, M.C., Foussard, F., Toupet, L., Sevenet, T., Bruneton, J.(CEPM, Faculte de Pharmacie, 16Bd Daviers, F-49100 Angers, France) **A novel leishmanicidal labdane from Polyalthia macropoda.** *Planta Medica*, v. 57(6): p. 552-554, 1991 (11 ref, Eng).

A new diterpene, (4S,9R,10R) methyl 18-carboxy-labda-8,13(E)-diene-15-oate has been obtained from the stem barks of *P.macropoda*. This labdanic derivative was identified on the basis of spectroscopic data and is biologically active against the promastigote Leishmania donovani donovani. Diterpene at the concentration of 0.25 mg ml-1 inhibited the division of parasite to an extent of 15 percent and at a concentration of 1.5 mg ml-1 100 percent growth was inhibited.

9202-1015 Scalbert, A.(Laboratoire de Chimie Biologique (INRA), Centre de Biotechnologie Agro-Industrielle, Institut National Agronomique Paris-Grignon, 78850 Thiverval-Grignon, France) **Antimicrobial properties of tannins.** *Phytochemistry*, v. 30(12): p. 3875-3883, 1991 (139 ref, Eng).

Tannin toxicity for fungi, bacteria and yeast is reviewed and compared to toxicity of related lower molecular weight phenols. The dependence of toxicity on tannin structure has been discussed. Many microorganisms can overcome plant defences based on tannins. They may detoxify tannins through synthesis of tannin-complexin) polymers, oxidation, tannin biodegradation or synthesis of siderophores.

9202-1016 Sundriyal, R.C.(Department of Botany, Govt. PG College, Kotdwara, Garhwal 246149, UP, India) **Fungi toxic properties of flower extract of some wild plants of Garhwal Himalaya.** *Advances in Plant Sciences*, v. 4(2): p. 230-234, 1991 (5 ref, Eng).

Flower extracts of five plant species i.e *Acacia arabica, Cassia fistula, Lantana camara, Rhododendron arborcum* and *Thevetia peruviana* were tested in vitro against conidial germination and germ tuber length of Alternaria solani, the casual organism of early blight of potato. Flower extract of *L.camara* showed maximum antifungal properties as it has shown maximum inhibition of conidial germination. NSL, New Delhi.

9202-1017 Tanaka, T., Metori, K., Mineo, S. , Hirotani, M., Furuya, T., Matsumoto, H. , Satoh, T., Kobayashi, S.(Department of Pharmacology, The Kohno Clinical Medicine Research Institute, 4-4 Kitashinagawa 3-chome, Shinagawa-ku, Tokyo 140, Japan) **Studies on collagenase inhibitors. IV. Inhibitors of bacterial collagenase in coptidis rhizoma.** *Yakugaku Zasshi*, v. 111(9): p. 538-541 1991 (12 ref, Jap, Eng).

A hot aqueous extract of Coptidis Rhizoma had an inhibitory effect on the bacterial collagenase from *Clostridum histolyticum*. Active principles were isolated by silica gel column chromatography from the CHCl3 extract. Consequently, two inhibitors obtained were identified with the chloride of berberine and coptisine. The concentrations of the berberine and coptisine in the assay mixture to give 50 percent inhibition (IC50) were 0.73 mM and 0.16 mn, respectively. Tetrahydroberberine, a reduction product of berberine chloride, had no inhibitory effect. This result suggests that the quaternary nitrogen of the alkaloids were found to play an important role in inhibitory activity.

9202-1018 Tewari, S.N., Nayak, M.(Laboratory of Natural Plant Products, Department of Plant Pathology, Central Rice Research Institute, Cuttack 753006, Orissa, India) **Activity of four plant leaf extracts against three fungal pathogens of rice.** *Tropical Agriculture (Trinidad)*, v. 68(4): p. 373-375 , 1991 (17 ref, Eng).

Leaf extracts of four plant species, *Piper betle, Ocimum sanctum, Nyctanthes arbor-tristis* and *Citrus limon* were effective in reducing the radial in vitro growth of *Pyricularia oryzae, Cochiliobolus miyabeanus* and *Rhizoctonia solani*. *P.betle* was found to be the best, followed by *O.sanctum* in reducing the growth of the pathogens completely in vitro and in checking the spread of blast, brown spot and sheath blight diseases of rice in vivo. *P.betle* and *O.sanctum* could be used as source of a pesticide of plant origin to combat the above three pathogens of rice in the field.

9202-1019 Yasuda, H., Uzawa, M., Kubota, M. , Yamano, T., Isogai, A., Suzuki, A.(Lotte Central Laboratory Co., Ltd., Numakage, Urawa, Saitama 336, Japan) **The extract of Stellaria media L. as an inhibitor for glycosyltransferase from Streptococcus sobrinus.** *Shoyakugaku Zasshi*, v. 45(2): p. 128-131, 1991 (7 ref, Eng).

Two glucosyltransferase inhibitors designated as Fr-A and Fr-B have been isolated from an acetone extract of *S.media*. Fr-A consists of a series of homologous compounds (M.W. 5,000-6,000), composed of fatty acid derivatives, fatty alcohols and carbohydrates and Fr-B was a mixture of long-chain fatty acids. In the presence of Fr-A at a concentration of 1 microg/ml, the production of adherent-water insoluble glucans by crude glucosyltransferase prepared from *Streptococcus sobrinus* was repressed by more than 80 percent.

9202-1020 Zhao, T., Wang, X., Rimando, A.M. , Che, C.(College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois 60680, USA) **Folkloric medicinal plants: Tinospora sagittata var. cravaniana and Mahonia bealei.** *Planta Medica*, v. 57(5): p. 505, 1991 (11 ref, Eng).

Tubers of *T.cordifolia* afforded a furanoid diterpene columbin. When tested in cell culture systems columbin was non-toxic to P388 and KB tumor cells. It did not show any antibacterial activity against E.coli, Streptococcus aureus or Bacillus subtilis at concentrations upto 100 microg/ml. It was however active in brine shrimp toxicity test (LC50 3.2 microg/ml.). The second plant *M.bealei* afforded jatrorrhizine as a major compound. The alkaloid was toxic to P388 cells ED 50 2.0 microg/ml) and the brine shrimps LD50 0.2 microg/ml) but was inactine in antibacterial assays upto concentration 100 micro g/ml.

Insecticidal & Piscicidal Activity

9202-1021 Adewunmi, C.O., Furu, P., Marquis, B.R., Fagbola, M., Olatunji, O.A.(Drug Research and Production Unit, Faculty of Pharmacy, Obafemi Awolowo University, Ile-Ife, Nigeria) **Molluscicidal trials and correction between the presence of Tetrapleura tetraptera in an area and the absence of the intermediate hosts of schistosomiasis and fascioliasis in southwest Nigeria.** *Journal of Ethnopharmacology*, v. 30(2): p. 169-183 , 1990 (38 ref, Eng).

A schistosomiasis research project, carried out in Southwest Nigeria yielded data by which it was possible to relate snail recovery from potential transmission sites to the presence or absence of *T.tetraptera*. Aqueous extracts of *T.tetraptera* were effective as a molluscicide against *Bulinus globosus* and *Lymnaea natalensis*. However, pollution of the environment by oils reduced or abolished the molluscicidal activity of *T.tetraptera*. The results indicate that the planting of *T.tetraptera* has potential for the local control of schistosomiasis . NML, New Delhi.

9202-1022 Anayalang, A.L., Reyna, J.H. , Gonzalez, O.E., Giral, F. (Instituto de Fisiologia Celular, Universidad Nacional Autonoma de Mexico, Apartado Postal 70 600, 04510 Mexico, DF) **Some biological effects of Dioscorea compista and Dioscorea mexicana glycosidic fractions.** *International Journal of Pharmacognosy*, v. 29(3): p. 161-168, 1991 (8 ref, Eng).

Biological activity of the glycosidic fractions from *D.composita* and *D.mexicana* was tested against two insect species and a weed; findings include delay of molting of Tenebrio molitor larvae, high toxicity to Anastrepha ludens adults, and inhibition of growth of *Cassia jalapensis*, mainly due to *D.mexicana* glycosides, whose composition differs from that of *D.composita* particularly in the presence of furostanic (semi-open chained) compounds, and whose structural similarity with ecdysones could explain delay of metamorphosis.

9202-1023 David, P.M.M., Jayasekhar, M. , Natarajan, S. (Agricultural Research Station, TNAU, Paramakudi 623 707, TN, India) **Evaluation of insecticides and botanicals for the control of flower gallmidge on Chilli.** *Madras Agricultural Journal*, v. 77(5-6): p. 249-252 , 1991 (4 ref, Eng).

Neem oil was found to reduce the gall midge damage by 56.9 percent as compared to the control. Extracts of neem cake 5 percent and garlic 1

9202-1024 Dixit, O.P., Saxena, R.C. , Shrivastava, R.K.(PG Department of Zoology, SSL Jain College, Vidhisha, MP, India) **Insecticidal activity of neem flower extracts against Callosbruchus chinensis, a stored grain pest.** *Journal of Current Biosciences*, v. 8(1): p. 23-24 , 1991 (Eng).

Acetone extract of the fresh neem flowers of *Azadirachta indica* showed insecticidal activity against *Callosobruchus chinensis*- a pest of stored bengal gram. Maximum mortality was observed at higher concentration of neem flower extracts. NSL, New Delhi.

9202-1025 Durairaj, C., Gasokan, Venugopal, M.S.(Agricultural College and Research Institute, Tamil Nadu Agricultural University, Madras 625104, TN, India) **Effect of three plant products on feeding of sapota leaf-webber (Nephopteryx eugraphella) (Lepidoptera: Phycitidae).** *Indian Journal of Agricultural Sciences*, v. 61(3): p. 233-234, 1991 (6 ref, Eng).

Experiment was undertaken to study the effect of 3 plant products for the control of sapota leaf-webber during June 1989. The experiment consisted of 10 treatments, viz., neem (*Azadirachta indica*) oil, neem seed-kernel extract

(1.2 percent) and neemcake extract (2.5 percent), illupai (*Bassia latifolia*) (1.2 percent) and *Calophyllum inophyllum* (Pinnai) (1.2 percent) oils and untreated control. The neem seed kernel extract (2 percent) recorded the minimum area fed and weight of fecal pellet followed by neem seed kernel 1 percent. In all other treatments the mean area fed varied from 10.3 sq. cm to 15.6 sq cm (in pinnai oil 2 percent and 1 percent respectively) and weight of fecal pellets from 75.3 mg to 109.7 mg (pinnai oil 2 percent and illupai oil 1 percent respectively).

9202-1026 Durairaj, C., Soorianathasundaram, K. , Nambisan, K.M.P. (Horticultural Research Station, Tamil Nadu Gopalasami Doraisami Naidu Agricultural University, Kodaikanal 624103, TN, India) **Antifeedant effect of plant extract on Nodostoma pubicolle (Coleoptera:Eumolpidae), a pest on pear (Pyrus communis).** *Indian Journal of Agricultural Sciences*, v. 61(12): p. 959-960, 1991 (6 ref, Eng).

Flower and leaf extracts of *Eupatorium adenophorum* and leaf extract of *Lobelia leschenautiana* decreased the feeding of the beetle. Neem derivative, azadirachtin (0.4 percent) was highly effective.

9202-1027 Evans, D.A., Kaleysa Raj, R (Department of Biochemistry, University of Kerala, Kariavattom, Thiruvanthapuram 695 581, Kerala, India) **Larvicidal efficacy of quassin against Culex quinquefasciatus.** *Indian Journal of Medical Research*, v. 93A(Sep): p. 324-327, 1991 (21 ref, Eng).

Crushed aqueous extracts of leaf, wood, bark and flowers of *Quassia amara* exhibited antilarval activity. Quassin, identified as antilarval principle was found effective against mosquito larvae at a concentration of 6 ppm. Quassin, an unsaturated lactone was present to the extent of 0.1 to 0.14 per cent (average 0.12 percent) on a dry weight basis in wood of *Q.amara*.

9202-1028 Narasimha Rao, G., Narayanasamy, P.(Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore 641 003, TN, India) **Effect of plant extracts and oils on rice yellow dwarf infection.** *Madras Agricultural Journal*, v.77(5-6): p. 197-201 , 1990 (6 ref, Eng).

Leaf extracts of *Azadirachta indica* recorded low infection(40 percent) compared to extracts of *Mirabilis jalapa, Catharanthus roseus, Nerium oleander* maize and control (82.2 percent). The mcubation period increased to 40.3 days as against 28.5 days in control. Neem oil treatment recorded lower percent infection (13.3) as compared to illupai oil (26.7), pungam oil (20.0) and control (82.2). The incubation period was also increased significantly in the plants treated with oils.

9202-1029 Reichling, J., Merkel, B. , Hofmeister, P.(Institute fur Pharmazeutische Biologie der Universitat Heidelberg, Im Neuenheimer Feld 364, 6900 Heidelberg 1, Germany) **Studies on the biological activities of rare phenylpropanoids of the genus Pimpinella.** *Journal of Natural Products*, v. 54(5): p. 1416-1418, 1991 (6 ref, Eng).

Epoxy-pseudoisoeugenoltiglate, epoxy-anoltiglate and anoltiglate from *P.major* and five other rare phenylpropanoids have been tested for their insecticidal, acaricidal, and phytotoxic activities.

9202-1030 Samuthiravelu, David, B.V.(Department of Animal Sciences, School of Biological Sciences, Madurai kamraj university, Madurai 625 021, TN, India) **Bio-efficacy of neem oil and deltamethrin against spotted boll worm Earias vittella (Fab.)(Noctuidae: Lepidoptera) on cotton (MCU5).** *Madras Agricultural Journal*, v. 77(7&8): p. 294-298 , 1990 (7 ref, Eng).

Neem oil at 0.5 percent alone and combinations of neem oil at 0.30, 0.40 and 0.50 percent with pyrethroid deltamethrin 0.09 percent effectively minimised the boll worm infestation. Deltamethrin in cambination with neem oil recorded higher yield than neem oil alone.

Phytochemistry

9202-1031 Abd-el-Fattah, H.(Pharmacognosy Department, Faculty of Pharmacy, Mansoura University, Mansoura, Egypt) **A contribution to the chemistry of Asphodelus fistulosus var tenuifolius Cav. (Part 1).** *Acta Pharmaceutica Jugoslavica*, v. 41(2): p. 147-153 , 1991 (13 ref, Eng).

The phytochemical investigation of *A.fistulosus* var *tenuifolius* aerial parts led to isolation of five anthraquinones identified as lacciac acid, D-desoxyerythrolaccin, asphodelin, chrysophanol and aloe-emodin in addition to beta-furoic acid, identification was performed via physical, chemical and spectroscopic evidences.

9202-1032 Achenbach, H., Frey, D., Waibel, R.(Institute of Pharmacy and Food Chemistry, Department of Pharmaceutical Chemistry, University of Erlangen, W-8520 Erlangen, Germany) **6a,7-Dehydro-2-hydroxy-4,5-dioxonoraporphine and other alkaloids from Monocyclanthus vignei: 13C-NMR studies on 4,5-dioxoaporphines.** *Journal of Natural Products*, v. 54(5): p. 1331-1336 , 1991 (28 ref, Eng).

The new and unusually substituted 4,5-dioxonoraporphine (C16H9NO3, mp 283-85 degree C) was isolated,

among other aporphines and phenanthrene-type alkaloids, from the stem bark of *M.vignei*. The 13C-NMR spectra of 4,5-dioxoaporphines have been reported for the first time.

9202-1033 Adedeji, J., Hartman, T.G., Rosen, R.T., Ho, C.T.* (Department of Food Science and The Center for Advanced Food Technology, Cook College, New Jersey Agricultural Experiment Station, Rutgers, The State University of New Jersey, New Brunswick, New Jersey 08903, USA) **Free and glycosidically bound aroma compounds in hog plum (Spondias mombins L.).** *Journal of Agricultural and Food Chemistry*, v. 39(8): p. 1494-1497, 1991 (23 ref, Eng).

Free and glycosidically bound volatiles from tropical fruit *S.mombins* were characterized. Isolation and separation of components were accomplished by adsorption on a nonionic resin Amberlite XAD-2 by column chromatography and elution by various selective solvents. Aglycons from the glycosidically bound fraction were released by enzymatic hydrolysis with almond beta-glycosidase. Volatile components from both free and glycosidically bound fractions were analysed by gas chromatography (GC), and gas chromatography-mass spectrometry (GC-MS). Retention indices and concentrations were calculated by using a basic program. Tridecane was used as internal standard. Totals of 46 and 28 volatiles were reported in the free and glycosidically bound fractions, respectively. Sensory evaluation (olfactory) of the individual chemical components of free and glycosidically bound fractions was accomplished by sniffing the eluate at the end of a GC sniff port. Correlations of the GC-MS analysis with the sensory data revealed the character flavor compound as isobutyl 3-hydroxybutanoate.

9202-1034 Aeri, V., Zafar, R.(Department of Pharmacognosy and Phytochemistry, Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **Isolation of alpha-and beta-amyrin from the bark of Cassia renigera Wall.** *Indian Drugs*, v. 29(3): p. 136-137, 1991 (6 ref, Eng).

Mixture of alpha- and beta-amyrin was isolated from the bark of *C.renigera.*

9202-1035 Afaq, S.H., Amin, M.M.W.(Pharmacognosy Section, Department of Ilmul Advia, Faculty of Unani Medicine, AK Tibbiya College, Aligarh Muslim University, Aligarh 202002, UP, India) **Constituents of Astragalus hamosus.** *Fitoterapia*, v. 62(4): p. 364, 1991 (3 ref, Eng).

Lauric, myristic, palmitoleic, palmitic, stearic, oleic, arachidic acids; amino acids viz., ornithine, arginine, histidine, DL-dopa, alanine, methionine, norleucine, isoleucine and sugars (fructose and glucose) were isolated from *A.hamosus* seeds.

9202-1036 Agrawal, P.K., Thakur, R.S. , Shoolery, J.N.(Central Institute of Medicinal & Aromatic Plants, Lucknow 226016, UP, India) **Application of 2D NMR spectroscopy to the structural establishment of the major hydrolysis product of aescin.** *Journal of Natural Products*, v. 54(5): p. 1394-1396 , 1991 (9 ref, Eng).

The structure of the major product, protoaescigenin, obtained by the acid hydrolysis of the aescin from *Aesculus indica* has been established as olean-12-ene-3beta,16alpha,21beta,22alpha,24,28-hexaol.

9202-1037 Ahmad, M., Jain, N., Kamil, M. , Ilyas, M.(Department of Chemistry, Aligarh Muslim University, Aligarh 202 002, UP, India) **Flavonoids from Quercus infectoria.** *Fitoterapia*, v. 62(3): p. 283, 1991 (2 ref, Eng).

Amentoflavone, hexamethylether, isocryptomerin, beta-sitosterol, tannine, gallic, ellagic acids, starch, sugars, essential oil and anthocyanins were isolated from the fruits of *Q.infectoria.*

9202-1038 Ahmad, M., Jain, N., Kamil, M.* , Ilyas, M.(Department of Chemistry, Aligarh Muslim University, Aligarh 202002, UP, India) **Flavonoid constituents of Cassia biflora.** *Fitoterapia*, v. 62(4): p. 347-384, 1991 (7 ref, Eng).

C.biflora leaves yielded the new flavonol glycoside kaempferol-7-O-{beta-D-galactopyranosyl-(1 to 4)-alpha-L-rhamnopyranoside and two known flavonol glycosides, quercetin-3-O-{beta-D-glucopyranosyl-(1 to 6)-alpha-L-rhamnopyranoside} and myricetin-3-O-alpha-L-rhamnopyranoside. Their structures were established by spectroscopic studies.

9202-1039 Ahmad, V.U., Shah, M.G., Mohammad, F.V., Ismail, N., Noorwala, M.(H.E.J. Research Institute of Chemistry, University of Karachi 75270, Pakistan) **Macrophylloside, a flavone glucoside from Primula macrophylla.** *Phytochemistry*, v. 30(12): p. 4206-4208, 1991 (7 ref, Eng).

A new flavone glucoside macrophylloside has been isolated from the whole plant of *P.macrophylla* and its structure was determined by spectroscopic methods as 2'-hydroxy-7-O-beta-D-glucopyranosyloxyflavone.Sitosterol glucoside was also isolated for the first time from this plant.

9202-1040 Ahmed, M., Datta, B.K., Rouf, A.S.S., Hassan, M.A. (Department of Pharmacy, University of Dhaka, Dhaka 1000, Bangladesh) **Constituents of Persicaria stag-**

nina. *Planta Medica*, v. 57(5): p. 503-504, 1991 (3 ref, Eng).

The whole plant extract of *P.stagnina* afforded in addition to tocopherol and beta-sitosterin, the new hemiacetal. The H NMR spectrum showed that new compound is 2,3-ditigloyloxy derivative of isodrimeninol and was named staginol. The stereochemistry of staginol was also determined.

9202-1041 Ahmed, Z., Kazmi, S.N.H., Malik, A.*(HEJ Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Phytochemical investigation of Abutilon pakistanicum.** *Fitoterapia*, v. 62(4): p. 349-352, 1991 (16 ref, Eng).

A new steroid, E-24-ethylidene-23-gamma-methyl-5alpha-cholest-20(22)-ene, and the tetradecanyl ester of triacontanoic acid have been isolated from *A.pakistanicum* and their structures elucidated through spectroscopic studies.

9202-1042 Akdemir, Z., Calts, I.*, Junior, P.(Hacettepe University, Faculty of Pharmacy, Department of Pharmacognosy, TR-06100 Ankara, Turkey) **Iridoids and phenylpropanoid glycosides from Pedicularis nordmanniana.** *Planta Medica*, v. 57(6): p. 584-585, 1991 (6 ref, Eng).

Fractionation of the water-soluble part of the methanolic extract from the aerial parts of *P.nordmanniana* yielded nine known compounds of which four are iridoid glucosides, geniposidic acid, aucubin, euphroside and mussaenoside, one is an iridolactone and four are phenylpropanoid glycosides, martynoside, leucosceptoside A, aceteoside and forsythoside B. Since the iridoid glucosides and phenylpropanoid glycosides are well described in the references, the full 1H- and 13C-NMR assignments of the iridolactone has been reported..

9202-1043 Akhila, A., Rani, K., Srivastava, R., Thakur, R.S. (Central Institute of Medicinal and Aromatic Plants, Lucknow 226 016, UP, India) **An aberrant 1,3-hydrogen shift during the formation of 1H-cycloprop(e)azulene decahydro-1,1,4,7-tetramethyl skeleton in in vivo system.** *Fitoterapia*, v. 62(3): p. 243-247, 1991 (20 ref, Eng).

Measurement of isotope ratios (3H/14C)in viridiflora biosynthesised in *Mentha piperita* from (3RS-)-mevalonate{2-14C,53H2} showed that 1H-cycloprop(e)azulene decahydro-1,1,4,7-tetramethyl skeleton is constructed from its presumed precursor farnesylpyrophosphate with an unexpected 1,3-hydrogen shift.

9202-1044 Ali Nia, M., Gunasekar, D.*(Department of Chemistry, Sri Venkateswara University, Tirupati 517 502, AP, India) **Flavonoid glucuronides from the leaves of Clerodendron linearis.** v. 68(5): p. 309*Journal of the Indian Chemical Society*, 1991, 1991 (3 ref, Eng).

Isolation and characterisation of three flavone O-glucuronides, viz. luteolin-7-O-beta-D-glucuronide, chrysoeriol-7-O-beta-D-glucuronide and apigenin-7-O-beta-D-glucuronide from the defatted leaves of *C.linearis* has been reported.

9202-1045 Ali, M.(Faculty of Pharmacy, Hamdard University, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **New dihydroxysterols from Colocasia esculenta tubers.** *Indian Journal of Pharmaceutical Sciences*, v. 53(3): p. 98-100, 1991 (11 ref, Eng).

Two new dihydroxysterols alongwith beta-sitosterol and stigmasterol were isolated from the tubers of *Colocasia esculenta* and characterized as 14alpha-methyl-5 alpha-cholesta-9, 24-diene-3 beta,7alpha-diol and 14alpha-methyl-24-methylene-5 alpha-cholesta-9, 24-diene-3 alpha,7 alpha-diol.

9202-1046 Ali, M., Bhutani, K.K.(Faculty of Pharmacy, Hamdard University, Jamia Hamdard, Hamdard Nagar, New Delhi 110062, India) **Neutral constituents of the aerial parts of Tylophora hirsuta.** *Fitoterapia*, v. 62(3): p. 284, 1991 (6 ref, Eng).

Gymnorhizol, beta-sitosterol and thirteen phenanthroindolizidine alkaloids were isolated from the aerial parts of *T.hirsuta.*

9202-1047 Ali, M., Ansari, S.H.(Faculty of Pharmacy, Hamdard University, Hamdard Nagar, New Delhi 110 062, India) **A new hydroxyketone from the seeds of Musa balibisiana.** *Oriental Journal of Chemistry*, v. 7(3): p. 167-169 , 1991 (13 ref, Eng).

A new aliphatic compound has been isolated from the seeds of *M.balbisiana* syn. *M.sapientum* and characterized as n-octacosan-1-ol-22-one by a combination of spectroscopic analyses and chemical interactions.

9202-1048 Ali, M., Ansari, S.H., Qadry, J.S.(Faculty of Pharmacy, Hamdard University, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **Rare phenanthroindolizidine alkaloids and a substituted phenanthrene, tyloindanes from Tylophora indica.** *Journal of Natural Products*, v. 54(5): p. 1271-1278 , 1991 (11 ref, Eng).

From the aerial parts of *T.indica*, five new dihydrophenanthroindolizidine alkaloids, tyloindicines F, G, H, I and J, and a benzcyclopentsubstituted phenanthrene derivative, tyloindane, have been isolated along with tylophorine. The structures have been determined by spectral data and chemical reactions.

9202-1049 Ali, M.(Faculty of Pharmacy, Jamia Hamdard, Hamdard University, Hamdard Nagar, New Delhi-110062, India) **Non-alkaloidal components of Tylophora hirsuta.** *Journal of the Indian Chemical Society*, v. 68(4): p. 253-254, 1991 (3 ref, Eng).

The dried and powdered aerial parts of *T.hirsuta* were exhaustively extracted with chloroform. The dried extract was treated with 2 N HCl to remove alkaloids and the undissolved portion was subjected to column chromatography over silica gel, eluted with petrol, chloroform and methanol in order of increasing polarities. The constituents have been characterised mainly from their spectral data as; triacont, 15,19,23-trien 13-ol; triacontane, triacontanol and gymnorhizol.

9202-1050 Ali, M., Bhutani, K.K.(Faculty of Pharmacy, Jamia Hamdard, Hamdard Nagar, New Delhi 110 062, India) **Occurrence of hexahydroxydiphenic acid ester in Terminalia belerica fruits.** *Indian Journal of Natural Products*, v. 7(1): p. 16-17 , 1991 (4 ref, Eng).

A phenolic ester isolated from the fruits of *T.belerica* has been characterized as hexahydroxydipenicyl heptahydroxy diphenicylate on the basis of spectral analysis and chemical reactions.

9202-1051 Appendino, G.*, Gariboldi, P. , Menichini, F. (Dipartimento di Scienza e Technologia del Farmaco, C.so Raffaello 31, 10125 Torino, Italy) **The stereochemistry of arglabin, a cytotoxic guaianolide from Artemisia myriantha.** *Fitoterapia*, v. 62(3): p. 275-276, 1991 (7 ref, Eng).

The stereochemistry of arglabin, a cytotoxic guaianolide isolated from the Chinese medicinal plant *A.myriantha*, was assessed by 2D-NMR spectroscopy.

9202-1052 Arambewela, L.S.R.*, Ratnayake, C.(Ceylon Institute of Scientific and Industrial Research, PO Box 787, Colombo 7, Sri Lanka) **Constituents of Alstonia scholaris.** *Fitoterapia*, v. 62(4): p. 357, 1991 (14 ref, Eng).

Echitamine, picrinine; tubotaiwine and picraline deacetyl were isolated from *A.scholaria*.

9202-1053 Asibal, C.F., Zalkow, L.H.* , Gelbaum, L.T.(School of Chemistry, Georgia Institute of Technology, Atlanta, Georgia 30332, USA) **Acetylanonamine: a new secopyrrolizidine alkaloid from Senecio anonymus.** *Journal of Natural Products*, v. 54(5): p. 1425-1426 , 1991 (7 ref, Eng).

A new secopyrrolizidine alkaloid, acetylanonamine(1), was isolated from *S.anonymus*. The structure was established by high resolution NMR (1H-1H COSY and 1H-13C HETCOR), MS, comparison of these spectral data with those of anonamine (2), and synthesis of (1) from (2).

9202-1054 Atta-ur-Rehman, Pervin, A., Abdur Rhaman, M.(HEJ Research Institute of Chemistry, University of Karachi, Karachi-32, Pakistan) **Isolation and structure studies on the alkaloids of Dehassia kurzii.** *Fitoterapia*, v. 62(3): p. 261-265, 1991 (11 ref, Eng).

Two new alkaloids,, (+)-dehassiline and (-)-norboldine, were isolated from the bark of *D.kurzii* and their structures elucidated with the help of spectroscopic techniques.

9202-1055 Avadhoot, Y., Varma, K.C.*(College of Pharmacy, SGSITS, Indore 452 001, Sagar, MP, India) **Alkaloids of Mitragyna parvifolia from Sagar district.** *Indian Journal of Natural Products*, v. 6(2): p. 7-10 , 1990 (11 ref, Eng).

Seven alkaloids were isolated from the leaves of *M.parvifolia* growing in Sagar district. The pattern of alkaloids fromation was also observed over a period of 12 months.

9202-1056 Avato, P.(Universita' Degli Studi di Bari, Dipartimento Farmaco-Chimico, Via Amendola 173, 1-70126 Bari, Italy) **Essential oil of Thapsia garganica.** *Planta Medica*, v. 57(6): p. 585-586, 1991 (10 ref, Eng).

Distillation of the flowers and the fruits of *T.garganica* led to the isolation of a light blue oil, the main components of which are benzene and furan derivatives which constitute the bulk of the total volatiles. p-Vinylguaicol is a common component of flowers (48.0 percent) and fruits (61.3 percent). Terpenoids are present in relatively high amounts, linalool (11.6 and 8.6 percent in flowers and fruits, respectively) and geraniol (3.1 and 4.2 in flowers and fruits, respectively) being the most abundant monoterpenes. Azulene derivatives are also present in fruits and flowers.

9202-1057 Ayer, W.A.(Department of Chemistry, University of Alberta, Edmonton, Alberta, T6G2 G2 Canada) **The lycopodium alkaloids.** *Natural Product Reports*, v. 8(5): p. 455-463, 1991 (35 ref, Eng).

Lycopodium alkaloids has been reviewed in this article. The year covered include literature published between 1986 and oct 1990. The topic include C16.N2 alkaloids, C16 N alkaloids, lycopodane and fawcettidane group and magellanine group of alkaloids.

9202-1058 Baba, K., Qing, X.Y., Taniguchi, M. , Kozawa, M., Fujita, E.(Osaka University of Pharmaceutical Sciences, 2-10-65, Kawai, Matsubara, Osaka 580, Japan)

Studies on Chinese medicine "Fang-eng"(III) Constituents of Shui-Fang-Feng. *Shoyakugaku Zasshi*, v. 45(2): p. 167-173, 1991 (3 ref, Jap, Eng).

The components in Shui-Fang-Feng, the root of *Libanotis laticalycina*, obtained in China were assayed. Twelve coumarins, including L1-1 and L1-2, three polyacetylenes and three chromones were isolated from the EtOAc extract, and three chromones including L1-3 from the acetone-MeOH extract. The structures of L1-1 to L1-3 were determined by spectral analyses.

9202-1059 Baba, K., Xiao, Y.Q., Taniguchi, M. , Ohishi, H., Kozawa, M.*(Osaka University of Pharmaceutical Sciences, 2-10-65 Kawai, Matsubara-city, Osaka 580, Japan) **Isocoumarins from Coriandrum sativum.** *Phytochemistry*, v. 30(12): p. 4143-4146, 1991 (9 ref, Eng).

Two new isocoumarins, coriandrone A and B, were isolated from the aerial parts of *C.sativum* together with two known isocoumarins, coriandrin and dihydrocoriandrin. Their structure were established by spectroscopic means and X-ray analysis.

9202-1060 Bader, G., Zieschang, M., Wagner, K., Grundemann, E., Hiller, K.*(Fachbereich Pharmazie, Humboldt-Universitat zu Berlin, Goethestr.54, 0-1120 Berlin, Federal Republic of Germany) **New triterpenoid saponins from Helianthus annuus.** *Planta Medica*, v. 57(5): p. 471-474, 1991 (18 ref, Eng, Ger).

Three new bisdesmosidic triterpenoid saponins, helianthoside 1, 2 and 3, were isolated from the flowers of *H.annuus* and a new monodesmoside 4 was isolated after the cleavage of the ester-glycosidic linkages of 2 and 3. The structures of the compounds were elucidated by 13C-NMR, FAB-MS, GC/EI-MS of partially methylated alditol acetates and degradation methods.

9202-1061 Balde, A.M., Pieters, L.A., Wray, V., Kolodziej, H., Vanden Berghe, D.A., Claeys, M., Vlietinck, A.J.(Department of Pharmaceutical Sciences, University of Antwerp(U.I.A.), Universiteitsplein 1, B-2610 Antwerp, Belgium) **Dimeric and trimeric proanthocyanidins possessing a doubly linked structure from Pavetta owariensis.** *Phytochemistry*, v. 30(12): p. 4129-4135, 1991 (15 ref, Eng).

Pavetanin A-2, a new A-type proanthocyanidin, along with the trimers cinnamtannin B-1, pavetannin B-1, B-2, B-3, B-5 and B-6 have been isolated in their free phenolic form from the stem bark of *P.owariensis*. Spectral data and partial acid-catalysed degradation have been used to establish the structures of these epicatechins.

9202-1062 Barroso, J.G., Pedro, L.G., Pais, M.S.S., Scheffer, J.J.C.(Departamento de Biologia Vegetal, Faculdade de Ciencias de Lisboa Bloco C-2, Piso 1, Campo Grande, 1700 Lisboa, Portugal) **Analysis of the essential oil of Crithmum maritimum L.**. *Journal of Essential Oil Research*, v. 3(5): p. 313-316 , 1991 (9 ref, Eng).

The essential oil of seafennel *C.maritimum*, was isolated using three different procedures and subsequently analyzed by GC and GC/MS. Thirty-one compounds were identified in the oil, of which sabinene, gamma-terpinene and methylthymol represented more than 80 percent of the total oil. Differences in the monoterpene hydrocarbon and oxygenated monoterpene composition of the oils isolated by hydrodistillation, vacuum extraction or solvent extraction, respectively, were observed.

9202-1063 Baser, K.H.C., Tumen, G., Sezik, E.(Anadolu University, Medicinal Plants Research Centre, 26470 Eskischir, Turkey) **The essential oil of Origanum minutiflorum O.Schwarz and P.H. Davis.** *Journal of Essential Oil Research*, v. 3(6): p. 445-446 , 1991 (3 ref, Eng).

The oil of two collections of *O.minutiflorum* of Turkish origin was examined by GC and GC/MS. Forty-three constituents were identified with carvacrol (75.4-82 percent) being in most abundance.

9202-1064 Bauer, R., Foster, S.(Institut fur Pharmazeutische Biologie der Universitat Munchen, Karlstr.29, D-8000 Munchen 2, Federal Republic of Germany) **Analysis of alkamides and caffeic acid derivatives from Echinacea simulata and E.paradoxa roots.** *Planta Medica*, v. 57(5): p. 447-449, 1991 (11 ref, Eng).

The constituents of the roots of *E.simulata* and *E.paradoxa* were examined by HPLC. The major lipophilic and hydrophilic compounds could be identified. *E.paradoxa* contained several ketoalkenynes and proved to have almost identical constituents as *E.pallida*, *E.simulata* contained alkamides as found in *E.angustifolia* and in addition ketoalkenynes as in *E.pallida*. Echinacoside was found in both species.

9202-1065 Beale, M.H.(Department of Agricultural Sciences, University of Bristol, AFRC institute of Arable Crops Research, Long Ashton Research Station, Long Ashton, Bristol, BS 189AF, UK) **Biosynthesis of C5-C20 terpenoid compounds.** *Natural Product Reports*, v. 8(5): p. 441-454, 1991 (154 ref, Eng).

Biosynthesis of terpenoids published in the literature during 1989 has been reviewed. The topic include mevalonic acid, hemiterpenoids, diterpenoids, monoter-

penoids, prenyltranseferases and squiterpenoids. The mode of action of biosynthesis is given.

9202-1066 Bentley, K.W.(Department of Chemistry, Loughborough University of Technology, Loughborough, Leicestershire LE11 3TU, UK) **beta-Phenylethylamines and the isoquinoline alkaloids.** *Natural Product Reports*, v. 8(4): p. 339-366, 1991 (473 ref, Eng).

The paper reports the review of literature on phenylethylamines and isoquinoline alkaloids that has been published between July 1989 and June 1990. Alkaoids reviewed include apart-from the title compounds others viz., cularines, parines and isopavine, berberines and benzopyrrocolines, protopines. Rhoeadines, emetine and related alkaloids. Also aporphinoid alkaloids, morphine alkaloids, colchicine and erythrina and related alkaloids are included.

9202-1067 Berdini, R., Bianco, A.*, Guiso, M., Marini, E., Nicoletti, M., Passacantilli, P., Righi, G.(Centro CNR per lo Studio Della Chimica dell Sostanze Organiche Naturali, Roma, Italy) **Isolation and partial synthesis of 7,8-dehydro-6beta,10-dihydroxy-11-noriridomyrmecin, a methylcyclopentanoid monoterpene from Scrophularia canina.** *Journal of Natural Products*, v. 54(5): p. 1400-1403 , 1991 (18 ref, Eng).

A new cyclopentanoid monoterpene lactone was isolated from *S.canina*, together with the known iridoid glucosides aucubin, harpagide, 8-O-acetylharpagide and 10-O-beta-glucosylaucubin. Structure and absolute configuration of the new cyclopentanoid monoterpene lactone has been determined as 7,8-dehydro-6beta,10-dihydroxy-11-noriridomyrmecin.

9202-1068 Bhandari, S.P.S., Garg, H.S.*(Medicinal Chemistry Division, Central Drug Research Institute, Lucknow 226001, UP, India) **Chemical constituents of Nepeta eriostachia.** *Fitoterapia*, v. 62(4): p. 363, 1991 (7 ref, Eng).

2-Octadecanone, palmitic acid, docosanoic acid, tetracosanoic acid, hentriacontanol, friedelin, beta-sitosterol, oleanoic acid, bis-2-ethyl-n-hexylphthalate and stigmasta-3,5-dien-7-one were isolated.

9202-1069 Boelens, M.H., Jimenez, R.(Destilaciones Bordas Chinchurreta SA, PO Box 11, Seville, Spain) **Chemical composition of the essential oils from the gum and from various parts of Pistacia lentiscus L.(Mastic gum tree).** *Flavour and Fragrance Journal*, v. 6(4): p. 271-275 , 1991 (11 ref, Eng).

The chemical composition of the essential oils isolated by extraction of mastic gum and by hydrodistillation from leaves, unripe and ripe fruits of *P.lentiscus* was studied. Up to 250 constituents were detected in the oils. From these components, about 90 could be identified and quantified, comprising over 95 percent of the oils. The gum oil contained 90 percent monoterpene hydrocarbons, and the leaf oil 50 percent monoterpene hydrocarbons, 20 percent oxygen-containing monoterpenes and 25 percent sesquiterpenes, whereas the fruit oils consisted of 90-96 percent monoterpene hydrocarbons and 2-3 percent sesquiterpenes. The main constituents of the gum oil were: 79 percent alpha-pinene and 3 percent beta-myrcene: of the leaf oil: 11 percent alpha-pinene and 19 percent beta-myrcene: of the unripe-fruit oil: 22 percent alpha-pinene and 54 percent beta-myrcene and of the ripe-fruit oil: 11 percent alpha-pinene and 72 percent beta-myrcene. alpha-Terpineol and terpinen-4-ol (together 15 percent) were the dominant monoterpene alcohols in the leaf oil. Undecan-2-one (0.1-0.6 percent) seems to be an olfactively important constituent of the oils. dimyrcene (four isomers) occurred (0.5-4.4 percent) in all the oils.

9202-1070 Boelens, M.H., Jimeunez, R.(Destilaciounes Bordas Chinchurreta SA P.O.Box 11, Seville, Spain) **The chemical composition of Spanish myrtle leaf oils. Part I.** *Journal of Essential Oil Research*, v. 3(3): p. 173-177 , 1991 (14 ref, Eng).

Out of 100 compounds detected in the Spanish Myrtle Oil (Eau de'Agnes; Angels water), about 50 compounds has been identified and quantified. The main components were found to be alpha-piuene, (8.05-8.18 percent), 1,8-cineole (15.14-29.89 percent), linalool (0.5-8.3 percent) and myrtenyl acetate (32.90-35.90 percent). A myrtle oil of Moroccan and one of Albanian origin were also examined. The major components of these oils were alpha-pinene (19.40-23.54 percent), limonene (10.94-12.37 percent), 1,8-cineole (21.77-33.63 percent) and myrtenyl (16.06-16.08 percent).

9202-1071 Boonyaratanakornkii, L.*, Che, C. , Cordell, G.A., Fong, H.H.S., Farnsworth, N.R.(Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Chicago, Illinois 60680, USA) **Enkleine: An isoquinolone from Enkleia siamensis.** *Planta Medica*, v. 57(6): p. 582-583, 1991 (15 ref, Eng).

Examination of the CHCl3 fraction of roots of *E.siamensis* led to the isolation of two known compounds, identified as (-)-cudesmin, chamaejasmin(e), and a new isoquinolone alkaloid, enkleine (1), each of which was devoid of significant cytotoxic activity when tested in the KB and P-388 cell culture systems. The structure of enkleine was elucidated to be 5-hydroxy-4,7-dimethoxy-benzg-isoquinolin 1-one.

9202-1072 Boros, C.A., Stermitz, F.R.(Department of Chemistry, Colorado State University, Fort Collins, Colorado 80523, USA) **Iridoids. An updated review, Part 2.** *Journal of Natural Products*, v. 54(5): p. 1173-1246 , 1991 (110 ref, Eng).

The structures of 223 valeriana and plumeria iridoids, miscellaneous iridoid like compounds, simple secoiridoids, terpene- and phenolic-conjugated secoiridoids, bis-and tris-secoiridoids, and other miscellaneous secoiridoids published for the first time during 1980-1989 are listed with available physical and spectral data: mp, optical rotation, 1H NMR, 13C NMR, UV. Also included are revisions of structures originally published prior to 1980. The compounds are indexed alphabetically molecular weight. A plant source index is also included.

9202-1073 Britton, G.(Department of Biochemistry, University of Liverpool, P.O. Box 147, Liverpool L69 3BX UK) **Carotenoids and polyterpenoids.** *Natural Product Reports*, v. 8(3): p. 223-249, 1991 (373 ref, Eng).

This review includes topic on carotenoids and polyterpenoids. Broadly, the following chapters viz., carotenoproteins, retinal-proteins, and bacteriorhodopsin, polyisoprenoids, spectroscopic data has been emphasised. It covers the literature published in 1988.

9202-1074 Brooks, C.J.W., Watson, D.G.(Chemistry Department, University of Glasgow, Glasgow, Scotland, G1 1XW) **Triterpenoid phytoalexins.** *Natural Product Reports*, v. 8(4): p. 367-389, 1991 (163 ref, Eng).

The paper reports the review on terpenoid phytoalexins, published in the literature between the period Aug 1984 and Dec 1989. Phytoalexins of sweet potato, cotton, elm, tobacco, sweet pepper, potato, aubergine, tomato, coffee, rice, castor bean, cassava, lettuce, lodgepole pine, Madagascar periwinkle, periwinkle, and timothy has been included in this review.

9202-1075 Brophy, J.J., Lassak, E.V.(Department of Organic Chemistry, University of New South Wales, PO Box 1, Kensington, NSW 2033, Australia) **Steam volatile leaf oils of some western Australian Eucalyptus species.** *Flavour and Fragrance Journal*, v. 6(4): p. 265-269 , 1991 (10 ref, Eng).

The volatile leaf oils of *Eucalyptus calycogona*, *E.celastroides*, *ssp. celastroides*, *E.clelandii*, *E.grossa*, *E.salubris* var. *salubris*, *E.salubris* var. *glauca*, *E.stricklandii*, *E.tetragona* and *E.woodwardii*, isolated by steam distillation, were analysed by GC-MS. In addition to the usual monoterpenoids and sesquiterpenoids, substantial amounts of the phenolic ketone torquatone were also present in some of the oils.

9202-1076 Brophy, J.J., Fookes, C.J.R. , Lassak, E.V.*(Department of Organic Chemistry, University of New South Wales, PO Box 1, Kensington, NSW 2033, Australia) **Constituents of Santalum spicatum (R.Br.) A. DC. wood oil.** *Journal of Essential Oil Research*, v. 3(6): p. 381-385 , 1991 (23 ref, Eng).

The chemical composition of the steam-distilled wood oil of *S.spicatum* was investigated by means of GC/MS. The major constituents of the entirely sesquiterpenoid oil were trans, trans-farnesol (31.6 percent), epi-alpha-bisabolol(anymol) (10.7 percent), alpha-santalol (9.1 percent), Z-nuciferol (6.5 percent), cis-beta-santalol (5.4 percent), cis-lanceol (3.9 percent) and epi-beta-santalol(2.9 percent).

9202-1077 Bruno, M., Diaz, J.G., Herz, W.(Dipartimento di Chimica Organica dell'Universita, Archirafi 20, 90123 Palermo, Italy) **Guaianolides and lignans from Centaurea solstitialis subsp. schouwii.** *Phytochemistry*, v. 30(12): p. 4165-4166, 1991 (3 ref, Eng).

Aerial parts of *C.solstitialis* subsp.*schouwii* afforded the guaianolides cynaropicrin and aguerin B and the lignans arctigenin and matairesinol. The structure of a third guaianolide previously found also in *C.behen* was revised.

9202-1078 Budzianowski, J.(Chair and Department of Pharmaceutical Botany, K. Marcinkowski Medical Academy, ul. Wieniawskiego 1, 61-712 Poznan, Poland) **Caffeic acid esters from Urtica dioica and U.urens.** *Planta Medica*, v. 57(5): p. 507, 1991 (13 ref, Eng).

The analysis of acid fractions of leaves and flowers of *U.dioica* and *U.urens* revealed the presence of only caffeoylmalic acid in *U.dioica*, but trans-5-caffeoylquinic acid (chlorogenic acid) was found in both the species. Their identity was confirmed by direct H- and C-NMR and TLC comparison with authentic samples.

9202-1079 Cai, L.N., Zhang, R.Y., Wang, B. , Qiao, L., Huang, L.R. , Cheng, J.R.(School of Pharmaceutical Science, Central Laboratory, Beijing Medical University, Beijing 100083, China) **The structure of glyeurysaponin.** *Acta Pharmaceutica Sinica*, v. 26(6): p. 447-450, 1991 (8 ref, Eng, Chi).

A species of the genus *Glycyrrhiza*, *G.eurycarpa* recently reported as a new species growing in Gansu Province and Xinjiang Autonomous Region has rarely been studied before on its chemical constituents. The isolation and chemical elucidation of two triterpene glucosides named glyeurysaponin (C42H62O16, mp 288) and uralsaponin B from this species collected in Jinta County, Gansu Province has been reported. Their chemical structures were

elucidated by means of chemical and spectrometric analysis.

9202-1080 Castaneda, P., Albor, C., Mata, R.* , Bye, R., Linares, E.(Division de Bioquimica y Farmacia, Facultad de Quimica, Universidad Nacional Autonoma de Mexico, Coyoacan 04510, Mexico, DF) **Alkaloids from Simira mexicana.** *Fitoterapia*, v. 62(4): p. 366, 1991 (5 ref, Eng).

Harman (0.0057 percent of the dry wt) and strictosamide (0.0033) were isolated from the stem bark of *S.mexicana*(commonly called'quinaroja' in Mexico) Harman was found toxic to brine shrimp4 (LC50=25 micro g/ml) and exhibited moderate in vitro anti-*Plasmodium falciparum* activity (IC50=0.97 micro g/ml).

9202-1081 Catalan, C.A.N.*, Inigo, R.P.A. , Hernandez, L.R. (Instituto de Quimica Organica, Facultad de Bioquimica, Quimica y Farmacia, Universidad Nacional de Tucuman, Ayacucho 491, San Miguel de Tucuman 4000, Argentina) **Flavonoids of Erythroxylon myrsinites.** *Fitoterapia*, v. 62(3): p. 282, 1991 (Eng).

Quercetin-3-O-rhamnopyranoside, quercetin-3,7-dirhamnopyranoside, kaempferol-3-O-glucopyranoside, kaempferol-3-O-rhamnoglucoside and kaempferol-3,7-di-O-glycoside (sugars: glucose and rhamnose) were isolated from *E.myrsinites* leaves.

9202-1082 Chakravarty, A.K., Mukhopadhyay, S. , Das, B.(Indian Institute of Chemical Biology, Calcutta 700 032, WB, India) **Swertane triterpenoids from Swertia chirata.** *Phytochemistry*, v. 30(12): p. 4087-4092, 1991 (14 ref, Eng).

Two novel triterpenes belonging to swertane skeleton, besides gammacer-16-en-3beta-ol and 21alpha-H-hop-22(29)-en-3beta-ol, of rare occurrence have been isolated from *S.chirata* along with some common triterpenoids. Their structures were established on the basis of spectral and chemical evidence.

9202-1083 Chattopadhyay, A., Kundu, S., Patra, D.D., Singh, D.V. (Vivekananda Parvatiya Krishi Anusandhan Sala Almore 223601, UP, India) **Elemental composition and nutrient uptake of some important essential oil bearing plants.** *Indian Perfumer*, v. 35(2): p. 104-107, 1991 (1 ref, Eng).

Elemental composition of the following essential oil plants has been presented. Japanese mint, peppermint, burgamot mint, spearmint, rose, citronella, lemongrass, palmarosa, khus, patchouli, hops, celery, geranium, davana, lavender, ajowan and clarysage. Nutrient removal by some plants is also presented.

9202-1084 Chen, L.H., Xie, L., Xie, J.X.(Institute of Materia Medica, Chinese Academy of Medical Science, Beijing 100050, China) **Chemical identification of structure of podocarpamide by synthesis.** *Acta Pharmaceutica Sinica*, v. 25(12): p. 926-928 , 1990 (5 ref, Chi, Eng).

Podocarpamide, isolated from the bark of *Zanthoxylum podocarpum*, is a new compound with platelet aggregation inhibiting and SGPT level lowering activities. The structure of podocarpamide was identified by synthesis.

9202-1085 Chen, M., Luo, S.Q., Chen, J.H.(Shanghai Institute of Pharmaceutical Industry, Shanghai 200 040, China) **Studies on the chemical constitutents of Flemingia philippinensis.** *Acta Pharmaceutica Sinica*, v. 26(1): p. 42-48, 1990 (9 ref, Chi, Eng).

Two new prenylated flavonoids, flemiphilippinin C(I) and flemiphilippinin D(II) have been isolated from the root of *F.philippinensis* along with four known compounds. The structure of I and II were elucidated on the basis of chemical and spectroscopic data. The four known compounds were identified as 5,7,3',4'-tetrahydroxy-6,8-diprenylisoflavone(III), flemichin D(IV), beta-sitosterol(VI) and lupeol(VII), and a mixture of C22 to C30 aliphatic acid(V). Compounds III and IV showed significant cytotoxic activities against P388 cell cultures.

9202-1086 Chiavari, G., Galletti, G.C. , Piccagalia, R., Mohamud, M.A.(Dipartimento di Chimica "G. Ciamician" Universita di Bologna via Selmi. 2, 40126, Bologna, Italy) **Differentiation between resins Boswellia carterii and Boswellia frereana (Frankinceuse) of Samali origin.** *Journal of Essential Oil Research*, v. 3(3): p. 185-186 , 1991 (8 ref, Eng).

Chemical composition of a methanolic extract of the resins of *B.carterii* and *B.frereana* (birdwood) were examined by GC and GC/MS. Although only a limited number of constituents were identified, it is possible to use the data presented to differentiate between resins of each species.

9202-1087 Chintalwar, G.J., Mamdapur, V.R.* , Yadava, V.S., Padmanabhan, V.M.(Bio-Organic Division, Bhabha Atomic Research Centres, Bombay 400 085, Maharashtra, India) **Crystal and molecular structure of guaianolide from Cyathocline purpurea.** *Journal of Natural Products*, v. 54(5): p. 1397-1399 , 1991 (5 ref, Eng).

The structure of a guaianolide (C15H18O3, mp 118 degree C, yield 0.02 percent), isolated from the aerial parts of *C.purpurea* has been established as 6-alpha-hydroxy-4(14),10(15)-guaianolide spectroscopically and confirmed by X-ray analysis.

9202-1088 Christensen, L.P., Lam, J. , Thomasen, T.(Department of Organic Chemistry, Chemical Institute, University of Aarhus, DK-8000 Arhus C, Denmark) **Polyacetylenes from the fruits of Hedera helix.** *Phytochemistry*, v. 30(12): p. 4151-4152, 1991 (13 ref, Eng).

The fruits of *H.helix* afforded, in addition to the known polyacetylenes falcarinone and falcarinol, a polyacetylenic epoxide closely related to panaxydol. The structure of the epoxide was determined by spectral methods to be (Z)-9,10-epoxy-1-heptadecene-4,6-diyn-3-one.

9202-1089 Christov, V., Dutschewska, H. , Selenghe, D., Zhavsan, S., Zhamyansan, Y.(Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria) **13-epi-Hydroxysparteine and desoxyangustifoline, new alkaloids from Thermopsis mongolica.** *Journal of Natural Products*, v. 54(5): p. 1413-1415 , 1991 (9 ref, Eng).

Two new quinolizidine alkaloids, 13-epihydroxysparteine and desoxyangustifoline, have been isolated from the hitherto uninvestigated species *T.mongolica*. Also, (+)-sparteine, 17-oxosparteine, 5,6-dehydrolupanine,alpha-isolupanine, (+)-hydroxysparteine, (-)-anagyrine, (-)-thermopsine, (-)-cytisine, and N-methylcytisine have been found in the above ground parts of the plant.

9202-1090 Clifford, M.N., Gibson, C.L. , Rakotomalala, J.J.R., Cros, E., Charrier, A.(Food Safety Research Group, School of Biological Sciences, University of Surrey, Guildford GU2 5XH, UK) **Caffeine from beans of Mascarocoffea.** *Phytochemistry*, v. 30(12): p. 4039-4040, 1991 (12 ref, Eng).

Unequivocal evidence is presented for the presence of 0.55-0.81 percent caffeine in the beans of population A213 of *Coffea kianijavatensis*, one taxon of the *Mascarocoffea*, which traditionally have been viewed as caffeine-free.

9202-1091 Cravo, L., Perineau, F., Delmas, M.(Laboratoric de Chimie des Agroressources, ENSCT, 118 route de Narbonne,31077 Toulouse Cedex, France) **Chemical composition of the fruit and leaf oil of Polyalthia suaveolens Engl. et Diels.** *Journal of Essential Oil Research*, v. 3(6): p. 459-461 , 1991 (8 ref, Eng).

The essential oils (fruits and leaves) of *P.suaveolens* from Gabon were subjected to GC/MS analysis. Twenty-five compounds representing ca.99.5 percent of the total oils were identified. The major compounds were alpha-humulene (34.2 percent) and beta-caryophyllene (32.8 percent) for the leaf oil and myrcene (34.3 percent) for the fruit oil.

9202-1092 de Witte, P., Cuveele, J., Lemli, J.(Laboratory of Pharmaceutical Biology and Phytopharmacology, Institute of Pharmaceutical Sciences, K.U. Leunven, Van Evenstraat 4, B-3000 Leuven, Belgium) **Bicascarosides in fluid extracts of Cascara.** *Planta Medica*, v. 57(5): p. 440-443, 1991 (4 ref, Eng).

Bianthraquinone glycosides are formed during the preparation and conservation of fluid extracts of cascara. Analysis of these preparations has shown that up to 20 percent of total amount of anthracene glycosides can be dimerized. These dimers are devoid of laxative activity. They are absorbed in the intestine and very slowly excreted.

9202-1093 Diallo, B., Vanhaelen-Fastre, R., Vanhaelen, M. (Department of Pharmacognosy and Bromatology, Pharmaceutical Institute, U.L.B., Campus Plaine, CP 205/4, Bld du Triomphe, 1050 Brussels, Belgium) **Triacylbenzenes and long-chain volatile ketones from Cochlospermum tinctorium rhizome.** *Phytochemistry*, v. 30(12): p. 4153-4156, 1991 (11 ref, Eng).

The composition of the volatile fraction from *C.tinctorium* rhizome was investigated by GC and GC-MS; among 11 constituents detected, eight were identified as straight chain ketonic compounds. In addition, five triacylbenzenes were isolated from a petrol extract of the rhizome, separated by HPLC and identified by their spectral data.

9202-1094 Dixit, B.S., Srivastava, S.N.(National Botanical Research Institute, Lucknow 226 001, UP, India) **Detection of tannins from the bark of Mimusops littoralis.** *Indian Journal of National Products*, v. 6(2): p. 16-17 , 1990 (5 ref, Eng).

The methanol extract of *M.littoralis* bark showed the presence of gallic acid, methyl gallate, ellagic acid and quercetin and polymeric tannin.

9202-1095 Djarmati, Z., Schwirtlich, E. , Djordfevic, A., Jankov, R.M., Dfulinac, B.(Technical High School and Institute of Technology, Servo Mihalj, 23000 Zrenjanin, P.Drapsina 15, Yugoslavia) **High antioxidant activity of extracts obtained from sage by supercritical extraction.** *Journal of the`American Oil Chemists' Society*, v. 68(10): p. 731-734, 1991 (8 ref, Eng).

Ethanol extract of the ground herb of sage on fractionation with supercritical CO2, afforded 2H-10,4 alpha-(epoxy methano)-phenantren-12-one-1,3,4,9,10, alpha-hexahydro-5,6-dihydroxy- 9alpha-ethoxy-1,1-dimethyl-7-(1-methyl ethyl), (rosmanol-9-ethyl ether). The same compound was obtained from alcoholic extract of *Hyssopus officinalis*. Rosmanol 9-ethyl ether was shown to be the active component in sage and hyssop.

9202-1096 Dung, N.X., Pha, N.M., Lo, V.N. , An, N.T.K.(Department of Technical Chemistry and Pharmacy, University of Hanoi, 13-19 Le Thanh Tong Street, Hanoi, Vietnam) **The essential oil from the flowers of Citrus maxima (J.Burman) Merrill from Vietnam.** *Journal of Essential Oil Research*, v. 3(5): p. 359-360 , 1991 (5 ref, Eng).

Thirty-five compounds have been identified in the flower oil of *C.maxima* syn. *C.grandis* (common name Pummelo or Shaddock) The major components were limonene 18.2 percent, linalool, 16.4 percent, nerolidol 29.3 percent and farnesol 15.7 percent.

9202-1097 El-Hawary, S.S., Al-Yahya, M.A. , Al-Meshal, I.A., Mossa, J.S., Hifnawy, M.S.(Department of Pharmacognosy, College of Pharmacy, Cairo University, Cairo, Egypt) **Aromatic plants of Saudi Arabia. Part 13. Essential oil of Micromeria sinaica.** *International Journal of Pharmacognosy*, v. 29(3): p. 193-196, 1991 (7 ref, Eng).

The steam distilled oil of the aerial parts of *M.sinaica* was analysed by GC/MS. A total of 65 peaks were resolved and 56 peaks could be identified, or their chemical groups determined-representing about 98 percent of the total oil composition. Sesquiterpene hydrocarbons represent the major class of this oil (41 percent) while isoeugenol was the most prominent constituent (31.5 percent) of the oil composition). Moreover, the oil of this species was found active against certain microorganisms.

9202-1098 El-Hawary, S.S., Mossa, J.S. , Al-Yahya, M.A., Al-Meshal, I.A., Hifnawy, M.S.(Department of Pharmacognosy, College of Pharmacy, Cairo University, Cairo, Egypt) **Aromatic plants of Saudi Arabia. Part 12. Essential oils of Conyza incana.** *International Journal of Pharmacognosy*, v. 29(3): p. 188-192, 1991 (8 ref, Eng).

The steam distilled oil of the aerial parts of *C.incana* was analysed by GC/MS. The antimicrobial activity of the oil is presented. 71 Compounds accounting for about 86 percent of the oil constitution could be identified. Sesquiterpene hydrocarbons (37-38 percent) and sesquiterpenoids (22 percent) were the major groups in the investigated oil of which delta-cadinene and ledol were the most prominent (7.9 and 5.5 percent respectively). Many constituents, belonging to other different chemical groups, viz. monoterpene hydrocarbons (4 percent), monoterpenoids (9.91 percent), esters (6.0 percent) and miscellaneous compounds (6.74 percent) were also identified. The antimicrobial screening of the oil showed significant activity against the microorganisms *S. aureus*, *Pr. vulgaris*, *B.subtilis* and *C.albicans*.

9202-1099 Elgamal, M.H.A., Hanna, A.G. , Duddeck, H.(National Research Centre, Laboratory of Natural Products, Dokki, Cairo, Egypt) **Constituents of Achillea santolina.** *Fitoterapia*, v. 62(4): p. 359, 1991 (10 ref, Eng).

Stigmasterol, clionasterol, poriferasterol, leukodin, salvigenin, 3,6,7,3',4'-pentamethoxy-5-hydroxyflavone (artemisetin, artemetin), 6,7,3',4'-tetramethoxy-5-hydroxyflavone and eupatorin were isolated.

9202-1100 Elgamal, M.H.A., Yassin, F.Y. , Duddeck, H.(National Research Centre, Laboratory of Natural Products, Dokki, Cairo, Egypt) **Constituents of Artemisia monosperma.** *Fitoterapia*, v. 62(4): p. 360, 1991 (8 ref, Eng).

Taraxasterol, 7 taraxasterol acetate, pseudo-taraxasterol acetate, lupeol, 6-hydroxyluteolin-6,7,3-trimethylether, stigmasterol, beta-sitosterol, campesterol, lauric, myristic, palmitic, stearic and arachidic acids, were isolated.

9202-1101 Elgamal, M.H.A., Shalaby, N.M.M. , Duddeck, H.(National Research Centre, Laboratory of Natural Products, Dokki, Cairo, Egypt) **Constituents of Cynara sibthorpiana.** *Fitoterapia*, v. 62(4): p. 361, 1991 (4 ref, Eng).

Taraxasterol acetate, pseudotaraxasterol acetate, lupeol acetate, taraxasterol, stigmasterol, beta-sitosterol, palmitic, stearic, linoleic and arachidic acids alongwith vomifoliol (blumenol A), zaluzanin-C, solstitalin, sibthorpine, apigenin-7-glucoside, and 7-rutinoside, luteolin-7-glucoside and 7-rutinoside were isolated.

9202-1102 Elgamal, M.H.A., El-Wahab, S.A. , Duddeck, H.(National Research Centre, Laboratory of Natural Products, Dokki, Cairo, Egypt) **Constituents of Achillea fragrantissima.** *Fitoterapia*, v. 62(4): p. 362, 1991 (3 ref, Eng).

Taraxasterol acetate, pseudo-taraxasterol acetate, myristic, palmitic, stearic, oleic, linoleic and arachidic acids were isolated and identified.

9202-1103 Endo, Y., Endo, H., Fujimoto, K. , Kaneda, T.(Department of Food Chemistry, Faculty of Agriculture, Tohoku University, Sendai, 981, Japan) **Minor components responsible for flavor reversion of soybean oil.** *Journal of American Oil Chemists' Society*, v. 68(10): p. 769-770, 1991 (10 ref, Eng).

Edible refined, bleached and deodorized (RBD) soybean oil was fractionated by silicic acid column chromatography to identify minor components responsible for flavor reversion. Minor components from oil eluted with diethyl ether/n-hexane (1:1) were compared with those from

corn and canola oils. All vegetable oils contain free fatty acids, diglycerides and sterols as major ingredients in this fraction. However, unusual triglycerides consisting of 10-oxo-8-octadecenoic acid and 10- and 9-hydroxy octadecanoic acids were detected in RBD and crude soybean oils. These compounds may also exhibit some physiological activity.

9202-1104 Ettouati, L., Ahond, A.*, Poupat, C., Potier, P. (Institut de Chimie des Substances Naturelles du CNRS, 91198 Gif-sur-Yvette Cedex, France) **Revision of structure of taxine B, main alkaloid of Taxus baccata leaves.** *Journal of Natural Products*, v. 54(5): p. 1455-1458 , 1991 (10 ref, Fre, Eng).

The structure of taxine B, the main alkaloid of leaves of European yew (*T.baccata*), has been revised by means of 1H detected multiple bond heteronuclear multiple quantum coherence (HMBC) experiment.

9202-1105 Evans, W.C.(Buddlehayes, Southleigh, Colyton, Devon EX 136 JH, UK) **Medicinal and poisonous plants of the Solanaceae.** *British Journal of Phytotherapy*, v. 1(3/4): p. 26-31 , 1990 (4 ref, Eng).

The Solanaceae is composed of 85 genera and about 3000 species and is an important source of medicinal and poisonous plants. Among the secondary metabolites which contribute towards the medicinal and poisonous properties are alkaloids of the tropane, pyrrolidine and steroidal types, amines, amides and steroidal lactones. Nature and distribution of these compounds in the family is discussed.

9202-1106 Faruq, M.O., Haque, M.Z. , Sayeed, M.A., Islam Sardar, M.A.(BCSIR Laboratories, Rajshahi, Bangladesh) **Chemical investigations on Bangladeshi turmeric Part I. Preparation of synthetic dyes from curcumin.** *Bangladesh Journal of Scientific and Industrial Research* , v. 25(1-4): p. 110-117, 1990 (13 ref, Eng).

Bangladeshi turmeric, *Curcuma longa*, has been found to contain 1.15 percent of curcumin. Attempts were made to prepare dyes from curcumin through their various derivatives preparation. Among these derivatives, chloro-curcumin, nitro-chloro-curcumin, amino-chloro-curcumin, diazotised amino-chloro-curcumin and acetylated curcumin were found to have dyeing properties on both mordanted and unmordanted jute and on wool.

9202-1107 Ferri, P.H., Barata, E.S.(Instituto de Quimica, Universidade Estadual de Campinas, C.P. 6154, (13081) Campinas, SP, Brazil) **(-)-Di-de-O-methylgrandisin, a lignan from Virola pavonis leaves.** *Phytochemistry*, v. 30(12): p. 4204-4205, 1991 (11 ref, Eng).

Leaves of *V.pavonis* yielded a (7alpha,7'beta, 8beta,8'alpha)-4, 4'-dihydroxy-3,3'5,5'-tetramethoxy-7,7'-epoxylignan, (-)-di-de-O-methylgrandisin.

9202-1108 Fleisher, Z., Fleisher, A.(Crompton & Knowles Corporation, 1595 MacArthur Boulevard, Mahwah NJ 07430, USA) **The essential oil of Micromeria fruticosa(L.) Druce subsp. barbata (Boiss et. Ky.), P.H. Davis. Aromatic plants of the holy land and the Sinai, Part VII.** *Journal of Essential Oil Research*, v. 3(6): p. 477-479 , 1991 (3 ref, Eng).

The essential oil of *M.fruticosa* was studied by capillary GC/MS. Pulegone (62.0-65.2 percent), iso-menthol (6.9-7.3 percent), beta-caryophyllene (2.7-4.3 percent), piperitenone oxide (2.9-4.6 percent), and piperitenone (1.8-2.0 percent) were found to be major among 64 identified constituents.

9202-1109 Gasic, O., Ribar, B., Durkovic, R. , Popovic, M., Meszaros, C.S., Dutschewska, H., Engel, P.(Institute of Chemistry, Faculty of Sciences, University of Novi Sad, Yugoslavia) **Thalactamine - the main alkaloid of Thalictrum minus L..** *Acta Pharmaceutica Jugoslavica*, v. 41(2): p. 155-156 , 1991 (13 ref, Eng).

From *T.minus* grown on sandy soil of Deliblatska Pescara, thalactamine was isolated as the main alkaloid. Its structure was established on the basis of IR, 1H-NMR and MS and the molecular geometry was determined by X-ray diffraction method.

9202-1110 Ghosh, P., Sil, P., Das, S. , Thakur, S.*, Kokke, W.C.M.C., Akihisa, T. , Shimizu, N., Tamura, T., Matsumoto, T. (Department of Chemistry, The University of Burdwan, Burdwan 713104, India) **Tyramine derivatives from the fruit of Limonia acidissima.** *Journal of Natural Products*, v. 54(5): p. 1389-1393 , 1991 (16 ref, Eng).

Acidissiminol, acidissiminin epoxide and N-benzoyltyramine have been isolated from the fruits of *L.acidissima* and their structures elucidated.

9202-1111 Glotter, E.(Faculty of Agriculture, The Hebrew University of Jerusalem, Rehovot, 76-100, Israel) **Withanolides and related ergostane-type steroids.** *Natural Product Reports*, v. 8(4): p. 415-440, 1991 (206 ref, Eng).

Withanolides are a group naturally occurring steroids. The progress in the chemistry of withanolides and related compounds been reviewed.

9202-1112 Gonzalez, A.G., Andres, L.S., Luis, J.G., Brito, I., Rodriguez, M.L.(Centro de Productos Naturales Organicos Antonio Gonzalez, Universidad de La Laguna,

Carretera La Esperanza 2, La Laguna, 38206 Tenerife,Canary Islands, Spain) **Diterpenes from Salvia mellifera.** *Phytochemistry*, v. 30(12): p. 4067-4070, 1991 (21 ref, Eng).

Two new aromatic diterpenes have been obtained from the aerial part of *S.mellifera* and their structures identified, on the basis of spectral data and chemical correlations, as 11,12,20-trihydroxy-abieta-8,11,13-triene and 11,12,16-trihydroxy-abieta-8,11,13-trien-20-al. The known diterpenes, carnosic acid, carnosol, rosmanol, isorosmanol, galdosol, rosmadial, demethylsalvicanol and salvicanol were also isolated from the same source. The absolute configuration of salvicanol was established by X-ray diffraction analysis of its 11-p-bromobenzoate derivative.

9202-1113 Gou, D., Li, S., Chi, Q. , Sun, W.G.*, Sha, Z.F.(Shaanxi Provincial Academy of Traditional Chinese Medicine and Materia Medica, Xian 710003, China) **Isolation and structure determination of a new saponin of Anemarrhena asphodeloides.** *Acta Pharmaceutica Sinica*, v. 26(8): p. 619-621, 1991 (7 ref, Chi, Eng).

A new saponin, named smilageninoside,(mp 265 to 67 degrees C), was isolated from rhizomes of *A.asphodeloides* by conventional method. The structure of smilageninoside was identified as smilagenin 3-O-{beta-D-glucopyranosyl (1 to 2)}-beta-D-mannopyranoside.

9202-1114 Guo, D.A., Lou, Z.C., Gao, C.Y., Qiao, L., Peng, J.R. (School of Pharmaceutical Sciences and Analysis and Computer Center, Beijing Medical University, Beijing 100083, China) **Phytoecdysteroids of Rhaponticum uniflorum root.** *Acta Pharmaceutica Sinica*, v. 26(6): p. 442-446, 1991 (11 ref, Eng).

Three phytoecdysteroids I, II and III were isolated from the root of *R.uniflorum* and their structures were elucidated by chemical and spectroscopic methods. Compound II is new and named rhapontisterone, its structure was confirmed as (20R, 22R, 24S)-2beta,3beta, 11alpha,14alpha,20, 22, 24-heptahydroxy-5beta cholest-7-en-6-one. The other two, I and III, were identified as ecdysterone and turkesterone, respectively.

9202-1115 Halim, A.F., Mashaly, M.M. , Zaghloul, A.M., Abd El-Fattah, H., De Pooter, H.L.(Faculty of Pharmacy, Mansoura University, Egypt) **Chemical constituents of the essential oils of Origanum syriacum and Stachys aegyptiaca.** *International Journal of Pharmacognosy*, v. 29(3): p. 183-187, 1991 (14 ref, Eng).

The essential leaf oils of *O.syriacum* var. *aegyptiacum* and *S.aegyptiaca* were prepared by hydrodistillation and studied by CGC and GC-MS. Among the 28 compounds identified in the oil of *Origanum*, upto 83 percent consist of the antiseptic and flavoring agent carvacrol. In addition, carvacrol methyl ether and carvacryl acetate are present in minute amounts. The monoterpene hydrocarbon fraction accounts for nearly 12 percent of the oil of which p-cymene, gamma-terpinene, mycrene and alpha-thujene are the major components. The sesquiterpene compounds the monoterpene alcohols occur in insignificant concentrations. The oil of *S.aegyptiaca* consists mainly of 14 monoterpene hydrocarbons (75 percent), 4 oxygenated monoterpenes (1.1 percent) and 7 sesquiterpene hydrocarbons (17 percent). The dominant compound is alpha-pinene.

9202-1116 Hamburger, M., Hostettmann, K.*(Institut fur Pharmacognosie et Phytochimie, Ecole de Pharmacie, Universite de Lausanne, BEP, CH-1015 Lausanne, Switzerland) **Bioactivity in plants: The link between phytochemistry and medicine.** *Phytochemistry*, v. 30(12): p. 3864-3878, 1991 (137 ref, Eng).

The development of medicinal plant research over the last 30 years has been reviewed with reference to the search for new active principles. Difficulties inherrent to activity guided isolation and the specific requirements of bioassays are discussed. An overview is given on currently used systems for various bioactivities, with emphasis on simple bioassays for phytochemical laboratories. The progress in medicinal plant research is illustrated by selected examples of plant derived compounds of importance as drugs or pharmacological tools.

9202-1117 Han, J., Lin, W.H., Xu, R.S., Wang, W.L., Zhao, S.H. (Shanghai Institute of Materia Medica, Academia Sinica, Shanghai 200031, China) **Studies on the chemical constituents of Melia azedarach L..** *Acta Pharmaceutica Sinica*, v. 26(6): p. 426-429, 1991 (8 ref, Chi, Eng).

Melianoninol, melianol, melianone, meliandiol, vanillin and vanillic acid were isolated from the fruits of *M.azedarach*. The structure of melianoninol, a new compound, was elucidated by IR, MS, 1H NMR, 13C NMR and other spectral evidences. The new compound possesses some antifeeding properties against the imported cabbage worm (Pieris rarae L.).

9202-1118 Hasan, M., Burdi, D.K., Ahmad, V.U.*(HEJ Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Diterpene fatty acid esters from Leucas nutans.** *Journal of Natural Products*, v. 54(5): p. 1444-1446 , 1991 (10 ref, Eng).

A new diterpene fatty acid ester, trans-phytyl palmitate (C36H70O2), has been isolated from the aerial parts of *L.nutans* and characterized. n-Hentriacontane, 1-

dotriacontanol and phytol were also isolated for the first time from this plant.

9202-1119 Hasan, M., Burdi, D.K., Ahmad, V.U.*(H E J Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Leucasin, a triterpene saponin from Leucas nutans.** *Phytochemistry*, v. 30(12): p. 4181-4183, 1991 (10 ref, Eng).

A new saponin, leucasin, has been isolated from *L.nutans* and characterized on the basis of chemical investigation and spectroscopic studies as 3-O-{beta-D-glucopyranosyl(1 to 2) beta-D-glucopyranosyl} 2alpha,3beta-dihydroxylup-20(29)-ene. Lupeol palmitate, sitosterol and stigmasterol were also isolated.

9202-1120 Hatano, T., Fukuda, T., Miyase, T. , Noro, T., Okuda, T. (Faculty of Pharmaceutical Sciences, Okayama University, Tsushima, Okayama 700, Japan) **Phenolic constituents of licorice.III. Structures of glicoricone and licofuranone, and inhibitory effects of licorice constituents on monoamine oxidase.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1238-1243, 1991 (26 ref, Eng).

Two new phenolic compounds, glicoricone and licofuranone, were isolated from a species of licorice (*Glycyrrhiza spp*) brought from the northwestern region of China, and their structures were assigned. Among the twelve licorice constituents examined for the inhibition of monoamine oxidase (MAO), six compounds, 3,4, genistein, licopyranocoumarin, licocoumarone and glycyrrhisoflavone, inhibited the enzyme. Glycyrrhizin also inhibited MAO.

9202-1121 Hirakura, K., Morita, M., Nakajima, K., Ikeya, Y., Mitsuhashi, H.(Research Institute for Biology and Chemistry, Tsumura & Co., 3586 Yoshiwara, Ami-machi, Inashiki-gun, Ibaraki, Japan) **Three acetylated polyacetylenes from the roots of Panax ginseng.** *Phytochemistry*, v. 30(12): p. 4053-4055, 1991 (6 ref, Eng).

Three new acetylated polyacetylenes named ginsenoynes F, G and H were isolated from the hexane extract of the roots of *P.ginseng*. The structures were determinated by spectral and chemical methods.

9202-1122 Houson, J.R.(School of Molecular Sciences, University of Sussex, Brighton, Sussex BN19QJ, England) **Diterpenoids.** *Natural Product Reports*, v. 8(1): p. 13-16, 1991 (201 ref, Eng).

This is a review of literature on diterpenoids published in 1989. Review including the following topics viz., acyclic, bicyclic and tricyclic diterpenoids, labdanes, clerodanes, pimaranes, kaurenes, beyerenes, atiserenes, trachylobanes, gibberellins.

9202-1123 Huang, X.L., Zhang, Y.S., Liang, Z.Y.(Department of Biology, Northeast Normal University, Changchun 130024, China) **Studies on water soluble polysaccharides isolated from Tribulus terrestris L.- Purification and preliminary structural determination of heteropolysaccharide H.** *Acta Pharmaceutica Sinica*, v. 26(8): p. 578-583, 1991 (13 ref, Chi, Eng).

Crude polysaccharides extracted from the stem and leaf of *T.terrestris* after the removal of crude saponins are a mixture of heteropolysaccharides composed of Ara, Rha, Xyl, GalA, Gal, Glc and Man in molar ratios of 6.0:2.:1:3.6:3.4:7.7:2.9. A homogeneous polysaccharide H obtained by gradation and purification contains Ara, Rha, Xyl, GalA, Gal and Glc in molar ratios of 1.6:2.4:0.1:3.5:1.3:1. Its molecular weight was found to be 100000.

9202-1124 Ikeshiro, Y., Mase, I., Tomita, Y.(Department of Pharmacognosy and Phytochemistry, Niigata College of Pharmacy, 5-13-2 Kamishinei-cho, Niigata 950-21, Japan) **Abietane-type diterpene quinones from Salvia nipponica.** *Planta Medica*, v. 57(6): p. 588, 1991 (9 ref, Eng).

Two known diterpene quinones, taxodione, (a tumor inhibitor) and dihydrotanshinone were isolated from the roots of *S.nipponica*. The structures of taxodione and dihydrotanshinone with an abietane skeleton, were proved by using MS, 1H-NMR, 13C-NMR, H-H2D-COSY, C-H 2D-COSY, and DEPT experiments in addition to the routine spectroscopic techniques.

9202-1125 Ishii, H., Ishikawa, T., Takeda, S. , Mihara, M., Koyama, K., Ogata, K. , Harayama, T.(Faculty of Pharmaceutical Sciences, Chiba University, 1-33 Yayoi-cho, Chiba 260, Japan) **Ailanthoidine, a novel benzo{C}phenanthridine alkaloid with a cyanopyridine pendant, from a Xanthoxylum species.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1340-1342, 1991 (8 ref, Eng).

The structure of ailanthoidine isolated from the bark of *X.ailanthoides* has been deduced on the basis of its spectral data including 2-D NMR spectroscopy and an X-ray analysis.

9202-1126 Ishii, H., Kobayashi, J., Ishikawa, M., Haginiwa, J., Ishikawa, T.(Faculty of Pharmaceutical Sciences, Chiba University, 1-33 Yayoi-cho, Chiba 260, Japan) **Studies on the chemical constituents of rutaceous plants. LXVI. The chemical constituents of Toddalia asiatica(L.) Lam. (T.aculeata Pers.).(1). Chemical constituents of the root**

bark. *Yakugaku Zasshi*, v. 111(7): p. 365-375, 1991 (33 ref, Jap, Eng).

In addition to twelve known coumarins {toddaculin, coumurrayin, toddanone, 8-(3,3-dimethylallyl)-6,7-dimethoxycoumarin, isopimpinellin, 6-(3-chloro-2-hydroxy-3-methylbutyl)-5,7-dimethoxycoumarin, 6-formyllimettin, 5,7,8-trimethoxycoumarin, toddasin, (+)-toddanol, 6-(2-hydroxy-3-methoxy- 3-methylbutyl)-5,7-dimethoxycoumarin, and toddalolactone} five new coumarins {toddalenol, toddalosin, 5-methoxysuberenon, toddalenone, and 8-formyllimettin) were isolated. Furthermore seven known benzo{c}phenanthridine alkaloids {des-N-methylchelerythrine, oxychelerythrine, arnottianamide, oxyavicine, avicine, chelerythrine, and chelerythrine-psi-cyanide} and four known quinoline alkaloids {N-methylflindersine, 4-methoxy-1-methyl-2-quinolone, skimmianine, integriquinolone, one known triterpenoid {beta-amyrin}, and four unknown components were isolated.

9202-1127 Ishii, H., Tan, S., Wang, J.P. , Chen, I.S., Ishikawa, T.(Faculty of Pharmaceutical Sciences, Chiba University, 1-33, Yayoi-cho, Chiba 260, Japan) **Studies on the chemical constituents of rutaceous plants. LXVII. The chemical constituents of Toddalia asiatica(L.)Lam. (T.aculeata Pers.). Examination of coumarins using supercritical fluid and soxhlet extraction. Is toddalolactone a genuine natural coumarin ?.** *Yakugaku Zasshi*, v. 111(7): p. 376-385, 1991 (13 ref, Jap, Eng).

Toddalolactone is a main component of *T.asiatica*. However, supercritical fluid (SCF) extraction of the plant by using CO2 showed that a main component of the extract was not 1, but aculeatin (2), a coumarin having an epoxy ring on the side chain. The same result was obtained from Soxhlet extraction by using aprotic solvents. SCF extraction under various conditions was examined in detail by quantitative analyses of 1 and 2 by high performance liquid chromatography and the optimum condition extracting the both components was found to be at 40 degree C and at 300 kg/cm2. The condition was applied to the plant treated with aqueous sodium hydrogen carbonate in order to remove any acidic substances and 1 was still detected in the extract. SCF extraction was suggested to be a useful extraction method.

9202-1128 Ishii, K., Koike, K., Ohmoto, T.(School of Pharmaceutical Sciences, Toho University, 2-2-1 Miyama, Funabashi, Chiba 274, Japan) **Javanicinosides D-H, quassinoid glucosides from Picrasma javanica.** *Phytochemistry*, v. 30(12): p. 4099-4103, 1991 (12 ref, Eng).

From *P.javanica* five new quassinoid glucosides, javanicinosides D-H, together with known quassinoids, neoquassin and picrasin A and triterpenoids, hispidol A and lanosta-7,24-dien-3-one were isolated. The structures have been determined by spectral analysis and chemical evidence.

9202-1129 Ito, C., Furukawa, H.*(Faculty of Pharmacy, Meijo University, Tempaku, Nagoya 468, Japan) **Structure of murranimbine, a novel dimeric carbazole alkaloids from Murraya euchrestifolia.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1355-1357 , 1991 (4 ref, Eng).

The root bark of *M.euchrestifolia*, collected in Taiwan afforded a novel dimeric carbazole alkaloid named murranimbine, the structure of which was characterized by spectrometric analysis.

9202-1130 Jain, N., Ahmad, M., Kamil, M.* , Ilyas, M.(Department of Chemistry, Aligarh Muslim University, Aligarh 202002, UP, India) **Flavonoid constituents of the leaves of Semecarpus kurzii.** *Fitoterapia*, v. 62(4): p. 342-343, 1991 (8 ref, Eng).

S.kurzii leaves yielded the new flavonol kaempferol-3-O-beta-D-glucopyranoside-4'-O-alpha-L-rhamnopyranoside and the known quercetin-3-O-rhamnoside and apigenin-7-O-neohesperidoside.

9202-1131 Jakupovic, J., Tan, R.X., Bohlmann, F., Jia, Z.J., Huneck, S.(Institute for Organic Chemistry, Technical University of Berlin, D-1000 Berlin 12, Federal Republic of Germany) **Acetylenes and other constituents from Artemisia dracunculus.** *Planta Medica*, v. 57(5): p. 450-453, 1991 (14 ref, Eng).

The aerial parts of *A.dracunculus* afforded several known compounds as well as three new acetylenes, two phenylpropane derivatives, two monoterpenes, hex-3Z-en-1-ol and vomifoliol A glucosides. The structures were elucidated by spectroscopic methods and a few chemical transformations.

9202-1132 Jayalekshmi, A., Narayanan, C.S. , Mathew, A.G.(Regional Research Laboratory, CSIR, Trivandrum 695019, Kerala, India) **Identification of volatile flavor compounds in roasted coconut.** *Journal of the American Oil Chemists' Society*, v. 68(11): p. 873-880, 1991 (15 ref, Eng).

Pyrazines and other heterocyclic compounds present in roasted coconut contribute its flavour. Twenty pyrazines were identified which included pyrazine, methyl pyrazines, dimethyl pyrazines, ethyl methyl pyrazines, vinyl pyrazine and isopropyl pyrazine. In addition, delta-lactones, esters, ketones and fatty acids were present in coconut.

9202-1133 Jia, Z., Ding, Y.(Laboratory of Applied Organic Chemistry, Institute of Organic Chemistry, Lanzhou University, Lanzhou, People's Republic of China) **New diterpenoids from Euphorbia sieboldiana.** *Planta Medica*, v. 57(6): p. 569-571, 1991 (9 ref, Eng).

From the acetone extract of roots of *E.sieboldiana*, three known diterpenes, ent-atisane-3beta,16alpha,17-triol, ingenol and helioscopinolide A as well as two new diterpenes, 3beta-O-acetyl-ent-atisane-16alpha,17-diol and ingenol-20-palmitatè were isolated. Their structures were elucidated by spectroscopic methods and chemical transformations.

9202-1134 Jiang, Y., Haag-Berrurier, M. , Anton, R.*, Massiot, G., Lavaud, C. , Teulon, J.M., Guechot, C.(Laboratoire de Pharmacognosie, Faculte de Pharmacie, BP.24, 67401, Illkirch Cedex, France) **Structure of a new saponin from the bark of Mimosa tenuifolia.** *Journal of Natural Products*, v. 54(5): p. 1247-1253 , 1991 (11 ref, Eng).

A new bidesmosidic saponin of an oleanolic-type triterpene (named mimonoside C) has been isolated from the methanol extract of the bark of *M.tenuifolia* and its structure established on the basis of NMR and degradation studies.

9202-1135 Jikai, L., Dagang, W., Zhongjian, J., Jun, Z., Ziqing, Z.(Department of Chemistry, Zhongshan University, Guangzou, People's Republic of China) **Two new sesquiterpene esters from Celastrus glaucophyllus.** *Planta Medica*, v. 57(5): p. 475-477, 1991 (11 ref, Eng).

Two new sesquiterpene esters, celaglaupin and celaglausin, have been isolated from the root bark of *C.glaucophyllus*. Their structures have been elucidated on the basis of two-dimensional NMR and other spectral analysis as well as chemical methods, respectively.

9202-1136 Johansen, O.P., Andersen, O.M.* , Nerdal, W., Aksnes, D.W.(Department of Chemistry, University of Bergen, Allegt. 41, N-5007 Bergen, Norway) **Cyanidin 3-{6-(p-coumaroyl)-2-(xylosyl)-glucoside}-5-glucoside and other anthocyanins from fruits of Sambucus canadensis.** *Phytochemistry*, v. 30(12): p. 4137-4141, 1991 (17 ref, Eng).

From the fruits of *S.canadensis* four anthocyanin glycosides have been isolated by successive application of an ion-exchange resin, droplet-counter chromatography and gel filtration. The structure of the novel, major (69.8 percent) pigment, cyanidin 3-O-{6-O-(E-p-coumaroyl-2-O-(beta-D-xylopyranosyl)-beta-D-glucopyranos ide}-5-O-beta-D-glucopyranoside, was determined by means of chemical degradation, chromatography and spectroscopy, especially homo- and heteronuclear two-dimensional NMR techniques. The other anthocyanins were identified as cyanidin 3-sambubioside-5-glucoside (22.7 percent), cyanidin 3-sambubioside (2.3 percent) and cyanidin 3-glucoside (2.1 percent).

9202-1137 Jossang, A., Jossang, P., HaJi, H.A., Sevenet, T., Bodo, B.(Laboratoire, de Chimie, Museum National d'-Histoire Naturelle, URA CNRS 401,63 Rue Buffon 75005 Paris, France) **Horsfiline, an oxindole alkaloid from Horsfieldia superba.** *Journal of Organic Chemistry*, v. 56(23): p. 6527-6530 , 1991 (14 ref, Eng).

Horsfiline (C13H16N2O2, mp 125-126 degree C), a new oxindole alkaloid, has been isolated from the leaves of *H.superba* together with the known alkaloids 6-methoxy-2-methyl-1,2,3,4-tetrahydro-beta-carboline and 5-methoxy-N,N-dimethyltryptamine. The structure of horsfiline has been determined by spectral analysis and partial synthesis.

9202-1138 Joulain, D., Laurent, R., Fourniol, J.P., Yaacob, K.B. (Robertet SA, Grasse Cedex, France) **Novel moskachan related compounds in the essential oil of Ruta angustifolia Pers. from Malaysia.** *Journal of Essential Oil Research*, v. 3(5): p. 355-357 , 1991 (3 ref, Eng).

Forty-one compounds have been identified in the essential oil of *R.angustifolia*. Besides the already known compounds, seven derivatives possessing the 3,4-methylenedioxyphenyl moiety were identified, including piperonyl acetone and a novel olefinic derivative 8-(3,4-methylenedioxyphenyl)-1-octene.

9202-1139 Kaiser, R.(Givaudan Research Company Limited, CH-8600 Dubendorf-Zurich, Switzerland) **New volatile constituents of the flower concrete of Michelia champaca L..** *Journal of Essential Oil Research*, v. 3(3): p. 129-146 , 1991 (19 ref, Eng).

The investigation of two commercial concretes revealed the presence of more than 240 components. Some quantitative differences were found to exist between the components identified in the volatile part of each concrete. In the commercial absolute and concretes, the main constituents were phenylacetonitrile (1.2-4.5 percent), phenylethyl alcohol (25-34 percent), alpha-+beta-ionone (1.0-5.0 percent), methyl anthranilate (2.1-9.0 percent), indole (2.9-12.0 percent) and methyl linoleate (10.0-18.0 percent). In contrast, the lab-prepared concrete contained linalool (11.0 percent), cis-linalool oxide (pyranoid, 7.0 percent), dihydro-beta-ionone (10.0 percent) and alpha+beta-ionone (26.8 percent) as major constituents. Among the unusual compounds identified were 5-amyl-3,4-dimethylisoxazole, 3-amyl-4,5-dimethylisoxazole,

3-methyl-5(2,6,6-trimethyl-cyclohex-1-en-1-yl)-isoxazole, beta-ionone oxime including related oximes and two hydroquinolines. Furthermore, a series of mono and bicyclic ionone derivatives were also identified.

9202-1140 Karasawa, D., Ujihara, A., Shimizu, S.(Department of Bioscience and Biotechnology, Shinshu University, Minamiminowa 8304, Kamiina-gun, Nagano-ken 399-45, Japan) **The essential oil of Mentha spicata L. var. crispa Benth. from Nepal.** *Journal of Essential Oil Research*, v. 3(6): p. 447-448 , 1991 (4 ref, Eng).

The essential oil of *M.spicata* var. *crispa* of Nepalese origin was examined by GC/MS. It was found to be rich in L-carvone. The plant used in this study, which was regenerated from a shoot apex mericlone, was found to have a chromosome number of 2N=48.

9202-1141 Khan, M.S.Y., Siddiqui, A.A., Javed, K.(Department of Pharmaceutical Chemistry, Jamia Hamdard, New Delhi 110 062, India) **Chemical investigation of the leaves of Ficus hispida.** *Indian Journal of Natural Products*, v. 6(2): p. 14-15 , 1991 (3 ref, Eng).

Oleanolic acid has been isolated from the leaves of *F.hispida* (Janglianjir) and characterised.

9202-1142 Khan, M.S.Y., Javed, K., Khan, M.H.(Department of Medicinal Chemistry, Jamia Hamdard, New Delhi 110 062, India) **Chemical investigation of Coronopus didymus.** *Indian Journal of Natural Products*, v. 6(2): p. 18-20 , 1991 (4 ref, Eng).

5,7,4'-trihydroxy-3'-methoxy flavone, chrysoeriol, has been isolated from *C.didymus* (Jungli halla or panacholi) and identified on the basis of physical properties and spectral data.

9202-1143 Khanna, R.K.(National Botanical Research Institute, Lucknow 226001, UP, India) **Chemical examination of the essential oil from the leaves of Syzygium cuminii Skeel.** *Indian Perfumer*, v. 35(2): p. 112-115, 1991 (5 ref, Eng).

Physico-chemical properties of jamun leaf oil (0.18 percent) have been presented. The oil contains hydrocarbons (59 percent) and other oxygenated derivatives (41 percent). Major components are myrcene (14.62 percent), beta-pinene (5.4 percent), gamma-terpinene (5.7 percent), terpinolene (7.1 percent), beta-phellandrene (8.7 percent) and bornylene, methyl cinnamate (5.01 percent), cuminaldehyde (5.4 percent), alpha-terpineol (5.8 percent), eugenol (7.8 percent), borneol and other minor components. The oil can be used for flavouring and polymerises on keeping in light.

9202-1144 Kijjoa, A., Gonzalez, M.J.T.G., Pinto, M.M.M., Monanondra, I., Herz, W.(Department of Chemistry, The Florida State University, Tallahassee, FL 32306, USA) **Constituents of Knema laurina and Knema tenuinervia ssp. setosa.** *Planta Medica*, v. 57(6): p. 575-577, 1991 (7 ref, Eng).

Extraction of the stem bark of *K.laurina* and *K.tenuinervia* ssp. *setosa* furnished 3-(12-phenyl-8Z-dodecenyl)-phenol and 3-(8Z-pentadecenyl)-phenol together with 8-hydroxy-6-methoxy-3-n-pentylisocoumarin, respectively. 2-Carboxy-3-(12-phenyldodecyl)-phenol) and 2,4-dihydroxy-6-(10-phenyldecyl)-acetophenone were common to both extracts.

9202-1145 Kinoshita, K., Tanaka, J., Kuroda (nee Yamada), K. , Koyama, K., Natori, S., Kinoshita, T.(Meiji College of Pharmacy, Yato-cho, Tanashi-shi, Tokyo 188, Japan) **Cycloleonurinin, a cyclic peptide from Leonuri fructus.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 712-715, 1991 (9 ref, Eng).

From (*Leonurus artemisia* and *L.sibiricus* fruits, a cyclic peptide composed of twelve amino acid residues was isolated. The sequence of the residues was established by mass spectroscopy and by the use of a protein sequence for the partial hydrolysates obtained by alpha-chymotrypsin.

9202-1146 Kirimer, N., Ozek, T., Baser, K.H.C.(Faculty of Pharmacy, Department of Pharmacognosy, Anadolu University, 26470 Eskisehir, Turkey) **Composition of the essential oil of Micromeria congesta.** *Journal of Essential Oil Research*, v. 3(6): p. 387-393 , 1991 (33 ref, Eng).

The steam and water distilled oils of *M.congesta* were investigated by GC and GC/MS. Forty compounds were identified making up 91.5 percent of the steam distilled oil and 93 percent of the water distilled oil. Major components of the oils were identified as piperitenone oxide (40-45 percent), pulegone (9.7-11.8 percent) and verbenone (8.3-9.4 percent).

9202-1147 Kirimer, N., Baser, K.H.C.*(Anadolu University, Faculty of Pharmacy, Department of Pharmacognosy, 26470, Eskisehir, Turkey) **Alkaloids of Anatolian Thalictrum minus var. majus.** *Planta Medica*, v. 57(6): p. 587, 1991 (5 ref, Eng).

Dried roots and aerial parts of *T.minus* var. *majus* were separately extracted and the following alkaloids were isolated and identified using chromatographic and spectroscopic techniques: O-methylthalicberine, thalicberine, O-methylthalmethine, thaligosine (in aerial parts); thalmelatidine, adiantifoline, obaberine, oxycanthine (in roots) and berberine and magnoflorine (in both parts).

9202-1148 Kishor, N., Bahuguna, S., Sati,O.P.*, Sakakibara, J., Kaiya, T.(Department of Chemistry, HNB Garhwal University, Srinagar 246 174, UP, India) **A new molluscicidal spirostanol glycoside from Yucca aloifolia.** *Fitoterapia*, v. 62(3): p. 266-269, 1991 (13 ref, Eng).

From an ethanolic extract of defatted inflorescence of *Y.aloifolia*, a new gitogenin based molluscicidal spirostanol glycoside was isolated and characterized as 3-O-({beta-D-xylopyranosyl(1 to 3)-beta-D-galactopyranosyl(1 to 3}) (beta-D-xylopyranosyl(1 to 3)-alpha-L-rhamnopyranosyl(1 to 3)-beta-D-xylopyranosyl(1 to 2)}-beta-D-glucopyranosyl(1 to 3)-beta-D-glucopyranosyl}-25R, 5alpha-spirostan-2alpha,3beta-diol.

9202-1149 Kitagawa, I., Fukuda, Y., Taniyama, T., Yoshikawa, M. (Faculty of Pharmaceutical Sciences, Osaka University, 1-6, Yamada-oka, Suita, Osaka 565, Japan) **Chemical studies on crude drug processing. VII. On the constituents of Rehmanniae radix.(1): Absolute stereostructures of rehmaglutins A, B, and D isolated from Chinese Rehmanniae radix, the dried root of Rehmannia glutinosa Libosch.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1171-1176 , 1991 (19 ref, Eng).

An iridoid alcohol, rehmaglutin A, and two chlorinated iridoids, rehmaglutins B and D, were isolated from the less polar fraction of Chinese Rhemanniae radix {the dried root of *R.glutinosa*(Kan-jio in Japanese)}, together with rehmaglutin C, rehmaionoside C, jiocerebroside, and acteoside. The absolute configurations of rehmaglutins A, B, and D were established on the basis of chemical and spectral evidence which included the chemical derivations of rehamglutins from the known iridoid glycoside catalpol and the application of the benzoate chirality method.

9202-1150 Kouam, J., Nkengfack, A.E., Fomum, Z.T.*, Ubillas, R., Tempesta, M.S., Meyer, M.(Department of Organic Chemistry, University of Yaounde, BP 812 Yaounde, Cameroon) **Two new triterpenoid saponins from Erythrina sigmoidea.** *Journal of Natural Products*, v. 54(5): p. 1288-1292 , 1991 (20 ref, Eng).

Two new triterpenoid saponins, designated sigmoisides A(C36H60O7, mp 239-41 degree C) and B(mp 135-38 degree C) have been isolated from the MeOH extract of the wood and stem bark, respectively, of *E.sigmoidea* in addition to known maniladrol. Structures of sigmoioside A and B have been established as 3-O-{beta-D-galactopyranosyl}maniladiol and 3-O-{beta-D-glucopyranosyl} maniladiol respectively.

9202-1151 Krenn, L., Ferth, R., Robien, W. , Kopp, B.*(Institut fur Pharmakognosie der Universitat Wien, Wahringerstr. 25, A-1090 Wien, Austria) **Bufadienolides from Urginea maritima sensu strictu.** *Planta Medica*, v. 57(6): p. 560-565, 1991 (16 ref, Eng).

Fourteen bufadienolides were isolated from bulbs of hexaploid *U.maritima sensu strictu*. The compounds were identified by means of FAB-MS, 1H-NMR and 13C-NMR studies or comparison with authentic substances. Besides the already known compounds four new bufadienolides were isolated: 5alpha-4,5-dihdyroproscillaridin A, 5alpha-4,5-dihydroglucoscillaren A, gamabufotalin-3-O-alpha-L-rhamnoside-beta-D-glucoside, and 19-oxo-5alpha-4,5-dihydro-proscillaridin A.

9202-1152 Kuropka, G., Neugebauer, M. , Glombitza, K.*(Institut fur Pharmazeutische Biologie, Universitat Bonn, Nussallee 6, D-5300 Bonn, Federal Republic of Germany) **Essential oils of Achillea ptarmica.** *Planta Medica*, v. 57(5): p. 492-494, 1991 (9 ref, Eng).

Using GC and GC/MS, 40 compounds were identified in the essential oils of various organs of *A.ptarmica*. Three ponticaepoxides and (+)-(4S,6'R)-beta-sesquiphellandrene could be isolated from the root.

9202-1153 Lahloub, M.F., Zaghloul, A.M. , El-Khayaat, S.A., Afifi, M.S., Sticher, O.(Faculty of Pharmacy, Mansoura University, Mansoura, Egypt) **2'-O-Acetylpoliumoside: A new phenylpropanoid glycoside from Orobanche ramosa.** *Planta Medica*, v. 57(5): p. 481-485, 1991 (28 ref, Eng).

A new phenylpropanoid glycoside, 2'-O-acetylpoliumoside, as well as two known compounds-acteoside and 2'-O-acetylacteoside have been isolated from the aerial parts of *O.ramosa*. The structures have been elucidated by spectroscopic methods and supported by chemical evidences.

9202-1154 Lakshmi, S., Krishnamoorthy, T.V.(Department of Chemistry, Sri Sarada College, Salem 636 016, TN, India) **Flavanoids in the leaves of Datura stramonium Linn.** *Indian Journal of Pharmaceutical Sciences*, v. 53(3): p. 94-95, 1991 (10 ref, Eng).

Flavanoids viz., chrysin (flavone), liquiritigenin and naringenin (flavanones), kaempferol and quercetin (flavanols) present in the leaves of *D.stramonium* were extracted from aqueous methanolic extract by sequential extraction with various solvents. The ethylacetate fraction was separated into different flavanoids by column chromatography and the flavanoids were characterised by paper chromatography. The results were confirmed by NMR, UV and IR spectral studies.

9202-1155 Lamaison, J.L., Carnat, A. , Petitjean-Freytet, C., Carnat, A.P.(Laboratoire de Pharmacognosie et Phytotherapie Universite de Auvergne, 28, Place Henri-Dunaul, I 63000 Clermont-Ferand, France) **(Quercetin-3-glucuronide, the main flavonoid of lady mantle, Alchemilla xanthochlora Rothm (Rosaceae).** *Annales Pharmaceutiques Francaises*, v. 49(4): p. 186-189 , 1991 (20 ref, Eng, Fre).

The major flavonoid glycoside of *A.xanthoxhlora* =*A.vulgaris* leaves was isolated and identified as quercetin-3-O-beta-D-glucuronide.

9202-1156 Lamaty, G., Menut, C., Bessiere, J.M., Schenkel, E.P., Dos Santos, M.A. , Bassani, V.(Laboratoire de Chimie Organique Physique, Universite de Montpellier II, Sciences et Techniques du Languedoc 34095 Montpellier Cedex 5, France) **The chemical composition of some Achyrocline satureioides and Achyrocline alata oils from Brazil.** *Journal of Essential Oil Research*, v. 3(5): p. 317-321 , 1991 (19 ref, Eng).

Essential oils, which were obtained from the inflorescences of eight samples of *A.satureioides* collected from different areas of Brazil, were analyzed by GC and GC/MS. Thirty-two compounds representing 86-98 percent of the oils were identified. In each of the oils, alpha-pinene was always the most abundant (41-78 percent); the distribution of the other constituents (mainly (Z)- and (E)-beta-ocimenes, 1,8-cineole, beta-caryophyllene) allows the classification of the eight samples into three groups. The essential oil obtained from *A.alata* was found to be quite similar to that of *A.satureioides*.

9202-1157 Lamaty, G., Menut, C., Zollo, P.H.A., Kuiate, J.R., Bessiere, J.M., Koudou, J.(Laboratoire de Chimie Organique Physique, Universite de Montpellier H, Sciences et Techniques du Languedoc 34085 Montpellier Cedex 5, France) **Aromatic plants of Tropical Central Africa. III. Constituents of the essential oil of the leaves of Tithonia diversifolia (Hemsl.) A. Gray from Cameroon.** *Journal of Essential Oil Research*, v. 3(6): p. 399-402 , 1991 (15 ref, Eng).

The composition of the essential oil from the leaves of *T.diversifolia* was studied by capillary gas chromatography. The analysis using a combination of retention indices and combined GC/MS led to the identification of 20 components. The oil contains mainly monoterpenoids (88.2 percent) out of which 87.4 percent are monoterpene hydrocarbons and some sesquiterpene hydrocarbons (8 percent). The major constituent was (Z)-beta-ocimene (40.2 percent).

9202-1158 Lamer-Zarawska, E., Hojden, B. , Szymczak, J.(Katedra Zaklad Biologii i Botaniki AM, ul. Kochanowskiego 10, 51-601 Wroclaw, Polska) **Studies on oils from the seeds of some Oenothera species.** *Herba Polonica*, v. 35(4): p. 165-170, 1989 (Recd. 1991, 15 ref, Pol, Eng).

A number of *Oenothera* species have been studied for oil content. The seeds of *O.paradoxa*, which is a rare species for Poland, contained the maximum oil content (26.22 percent). The maximum amount of gamma-linolenic acid is present in the seeds of *O.acerviphilla* (15.68 percent), *O.paradoxa* (14.41 percent), and from an ecotype of *O.rubricaulis* (13.25 percent).

9202-1159 Lawrence, B.M.(RJR Tobacco Company, Bowman Gray Technical Center, P.O. Box 2959, Winston-Salem, NC 27102, USA) **Progress in essential oils.** *Perfumer & Flavorist*, v. 16(5): p. 75-82, 1991 (31 ref, Eng).

Recent developments made in the chemistry of essential oils of bergamot (*Citrus* spp.), cedarwood (*Juniperus*) spp., ambrette seed, and parsley (*Petroselinum* spp.) leaf and seed have been reviewed. Changes in chemical composition of bergamot oil throughout a harvesting season and three different seasons (1984-1988) have also been described.

9202-1160 Lawrence, B.M.(RJR Tobacco Company, Bowman Gray Technical Centre, P.O. Box 2959, Winston-Salem, North Carolina 27102, USA) **Progress in essential oils.** *Perfumer & Flavorist*, v. 15(1): p. 59-67, 1990 (Recd. 1992, 18 ref, Eng).

Recent developments in the chemistry of essential oils of *Cuminum cyminum*, *Salvia lavandulaefolia* and *Zingiber officinale* have been reviewed.

9202-1161 Lee, K.H., Xie, J.X., Hu, H.(Natural Products Laboratory, Division of Medicinal Chemistry and Natural Products, School of Pharmacy, University of North Carolina, North Carolina, USA) **Chemistry and pharmacology of the constituents from Brucea javanica.** *Abstracts of Chinese Medicines*, v. 4(4): p. 473-512 , 1991 (93 ref, Eng).

Fruits of *B.javanica* are well known as Ya-tan-tzu in Chinese folklore for the treatment of malaria, amoebic dysentery, parasitic diseases and breast cancer. The constituents of *B.javanica* numbering fifty-six mainly quassinoids have been tabulated alongwith their structural formulae and physical constants. Antimalarial activity of some quassinoids and also antitumour and cytotoxic activity of quassinoids from *Bruca* have been tabulated.

9202-1162 Lee, S.H., Tanaka, T., Nonaka, G.* , Nishioka, I. (Faculty of Pharmaceutical Sciences, Kyushu University 62, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812, Japan) **Tannins and related compounds. CV. Monomeric and dimeric hydrolyzable tannins having a dehydrohexahydroxydiphenoyl group, supinanin, euphorscopin, euphorhelin and jolkianin, from Euphorbia species.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 630-638 , 1991 (8 ref, Eng).

A chemical investigation of tannins in three *Euphorbia* species (*E.helioscopia*, *E.jolkini* and *E.supina* has led to the isolation and characterization of four new hydrolyzable tannins, named supinanin euphorscopin, euphorhelin and jolkianin, together with fourteen known compounds. On the basis of chemical and spectroscopic evidence, the structures of supinanin and euphorscopin were established as 1,3,6-tri-O-galloyl-2,4-(S)-dehydrohexahydroxydiphenoyl-beta-D-glucose and 1,3-(S)-dehydrohexahydroxydiphenoyl-2-O-galloyl-4,6-(S)-hexahydroxydip henoyl-beta-D-glucose, respectively. Euphorhelin and jolkianin were characterized as dimeric hydrolyzable tannins in which two glucopyranose units are linked via valoneoyl and dehydrodigalloyl groups, respectively, and each molecule possesses a dehydrohexahydroxydiphenoyl group.

9202-1163 Leitao, G.G., de Sousa Menezes, L.F. , Kaplan, M.A.C., Craveiro, A.A., Alencar, J.W.(Nucleo de Pesquisas de Produtos, Naturais Universidade Federal do Rio de Janeiro, CCS Bloco H, Cidad Universitaria 21941 Rio de Janeiro, Brasil) **Essential oils from Brazilian Aristolochia.** *Journal of Essential Oil Research*, v. 3(6): p. 403-408 , 1991 (12 ref, Eng).

The oils, which were obtained by steam distillation from seven Brazilian *Aristolochia* species: *A.gigantea*, *A.macroura*, *A.cymbifera*, *A.rodriguesia*, *A.birostris*, *A.papillaris* and *A.triangularis*, were analyzed. The major components of the various oils were:- *A.birostris*:beta-caryophyllene (13.9 percent), alpha-humulene (16.4 percent) and germacrene A (13.3 percent); *A.cymbifera*: n-undecane (17.7 percent) and dodecane (12.4 percent); *A.gigantea*: beta-caryophyllene (8.8 -19.3 percent), germacrene D (16.3-24.9 percent), gamma-elemene (0-21.6 percent), trans-alpha-bergamotene (2.3-12.5 percent, (E)-nerolidol (0-23.4 percent), linalool (0-14.6 percent), nerol (0-11.5 percent) and geraniol (0-26.2 percent); *A.macroura*: delta-elemene (1.2-12.4 percent), alpha-copaene (2.5-13.3 percent), beta-caryophyllene (10.6-15.3 percent), alpha-humulene (15.5-20.5 percent), gamma-elemene (10.4-11.6 percent) and (E)-nerolidol (0-33.1 percent), farnesene (12.7 percent); *A.papillaris*: calarene (13.6 percent), alpha-humulene(17.7 percent), gamma-cadinene (10.9 percent) and delta-cadinene (10.6 percent); *A.rodriguesia*: alpha-copaene (12.4 percent), beta-bourbonene (11.9 percent) and beta-elemene (10.7 percent); *A.triangularis*: (E)-nerolidol(12.3 percent) and decane (11.8 percent).

9202-1164 Lewis, J.R.(Department of Chemistry, University of Aberdeen, Meston Walk, Old Aberdeen, AB9 2UE, UK) **Muscarine, oxazole, thiazole, imidazole, and peptide alkaloids and miscellaneous alkaloids.** *Natural Product Reports*, v. 8(2): p. 171-183, 1991 (81 ref, Eng).

The review includes the literature published between July 1988 and June 1989 on the title alkaloids.

9202-1165 Liang, X., Ross, S.A., Sohni, Y.R. , Sayed, H.M., Desai, H.K., Joshi, B.S. , Pelletier, S.W.*(Institute for Natural Products Research and School of Chemical Sciences, The University of Georgia, Athens, Georgia 30602, USA) **Nortriterpenoid alkaloids from the stems and leaves of Delphinium ajacis.** *Journal of Natural Products*, v. 54(5): p. 1283-1287 , 1991 (12 ref, Eng).

Two new and eleven known norditerpenoid alkloids from the stems and six known norditerpenoid alkaloids from the leaves have been isolated from *D.ajacis*. Six alkaloids from the stems and three from the leaves are new to this plant species. Structures of the new alkaloids have been characterized to be 19-oxoanthranoyllycoctorine and 19-oxodelphatine.

9202-1166 Lin, M., Li, J.B., Wu, B. , Zheng, Q.T.(Institute of Materia Medica, Chinese Academy of Medical Sciences, 1 Xian Nong Tan Street, Beijing 100 050, People's Republic of China) **Stilbene derivative from Gnetum parvifolium.** *Phytochemistry*, v. 30(12): p. 4201-4203, 1991 (4 ref, Eng).

Gnetifolin F, a novel stilbene derivative, was isolated from the lianas of *G.parvifolium*. The structure was deduced mainly by the use of 1H-1H COSY, 13C-1H COSY, 13C-1H COLOC and NOE difference spectrum, and verified with X-ray crystallographic analysis.

9202-1167 Lin, T.C., Tanaka, T., Nonaka, G.* , Nishioka, I., Young, T.J.(Faculty of Pharmaceutical Sciences, Kyushi University, 3-1-1 Maidashi, Higasghi-ku, Fukuoka 812, Japan) **Tannins and related compounds. CVIII. Isolation and characterization of novel complex tannins (flavano-ellagitannins), anogeissinin and anogeissusins A and B, from Anogeissus acuminata (Roxb ex DC.) Guill. et Perr. var. lanceolata Wall. ex Clarke.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1144-1147 , 1991 (20 ref, Eng).

Three novel complex tannins (flavano-ellagitannins), anogeissinin and anogeissusins A and B, have been isolated from the bark of *A.acuminata* var.*lanceolata* together with eight known C-glycosidic hydrolyzable tannins. On the basis of spectroscopic and chemical evidence, anogeissinin

was shown to have two C-glycosidic ellagitannin (vescalagin) moieties connected to the C-6 and C-8 positions in the (+)-catechin moiety, while anogeissusins A and B have structures in which the dimeric C-glycosidic ellagitannin, castamollinin, is attached to the C-8 position of the (+)-catechin and (+)-gallocatechin moieties, respectively.

9202-1168 Lischewski, M., Hang, N.T.B. , Porzel, A., Adam, G., Massiot, G. , Lavaud, C.(Institute of Plant Biochemistry, Halle/Saale, Germany) **Withanolides from Dunalia australis.** *Phytochemistry*, v. 30(12): p.4184-4186, 1991 (5 ref, Eng).

Two new withanolides were isolated from roots of *D.australis*. From physical data and chemical transformations the structure of both constituents was determined as (20S,22R)-1alpha-acetoxy-3beta-hydroxy-witha-5,24-dic nolide and (20R,22R)-3-beta-acetoxy-1alpha,12beta, 20-trihdroxy-witha-5,24-dienolide.

9202-1169 Littek, A., Marner, F.J.*(Institut fur Biochemie der Universitat zu Koln, Zulpicher Strasse 47, D-5000 Koln 1, Germany) **Structure determination of new iridals from Iris pallida and Iris foetidissima.** *Helvetica Chimica Acta*, v. 74(8): p. 2035-2042, 1991 (15 ref, Eng).

Four novel iridals have been isolated from the rhizome extracts of *I.pallida* and *I.foetidissima* and their structures elucidated. Three compounds bearing a conjugated triene moiety are extremely labile and decompose easily. One monocyclic triene was only isolated after its conversion to a Diels-Alder adduct with 4-phenyl-3H-1,2,4-triazole-3,5(4H)-dione. A tricyclic iridal is a hitherto unknown precursor of alpha-irone. The possible biogenesis of these unusual triterpenoids is discussed.

9202-1170 Liu, H.M., Wu, B., Zheng, Q.T. , Feng, X.Z.(Institute of Materia Medica, Chinese Academy of Medical Sciences, 1 Xian Nong Tan Street, Beijing 100050, People's Republic of China) **New indole alkaloids from Amsonia sinensis.** *Planta Medica*, v. 57(6): p. 566-568, 1991 (13 ref, Eng).

Out of the fourteen indole alkaloids isolated from *A.sinensis*, two alkaloids viz., isoburnamine (1) and amsosinine (2) are new compounds. Their structures were established by spectral and chemical methods. A known sterol glycoside, daucosterol, has also been obtained. The structures of compounds (1) and (2) were finally confirmed by X-ray diffraction of single crystals.

9202-1171 Lou, H.X., Li, X., Zhu, T.R.(Division of Natural Product Research, Shengyang College of Pharmacy, Shengyang 110015, China) **Novel triterpenoids from Cynanchum hancockianum.** *Acta Pharmaceutica Sinica*, v. 26(8): p. 584-592, 1991 (7 ref, Chi, Eng).

Four new triterpenoids have been isolated from the petroleum ether extract of *C.hancockianum*. On the basis of spectral data and chemical connections, they were identified as hancockinol, hancolupenol, hancolupenone, and hancolupenol octacosanate.

9202-1172 Loyola, L.A., Morales, G. , Rodriguez, B., Jimenze-Barbero, J. , Pedreros, S., De La Torre, M.C., Perales, A. (Departamento de Quimica, Facultad, de Ciencicis Basicas, Universidad de Antofagasta, Chile) **Melinenic acid, a rearranged diterpenoid from Mulinum crassifolium.** *Journal of Natural Products*, v. 54(5): p. 1404-1408 , 1991 (7 ref, Eng).

Mulinenic acid (C20H30O3, mp 207-09 degree C), a new diterpenoid, has been isolated from the petroleum ether extract of the aerial parts of *M.crassifolium* and its structure elucidated by spectroscopic means and by a single-crystal X-ray diffraction analysis. Three other diterpenoids, mulinic, isomulinic and 17-acetoxymulinic acids have also been isolated and identified.

9202-1173 Lutomski, J., Luan, T.C.(Institute of Medicinal Plants, Libelta 27, 61-707 Poznan, Poland) **Polyacetylenes in rhizomes and roots of Vietnamese ginseng (Panax vietnamensis Ha et Grushv.).** *Herba Polonica*, v. 35(4): p. 207-211, 1989 (Recd. 1991, 15 ref, Eng).

Two major and three minor polyacetylenes were isolated from dried Vietnamese ginseng rhizomes and roots. The chemical structures of two major compounds separated were determined by UV, IR, 1HNMR, 13CNMR and mass spectra. These compounds were confirmed as falcarinol and heptadeca-1,8t-diene-4,6-diyne-3,10-diol. They were found in this species for the first time.

9202-1174 Ma, W.W., Anderson, J.E. , McLaughlin, J.L.(Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA) **Bioactive benzyl benzoates from the roots of Endlicheria dysodantha.** *International Journal of Pharmacognosy*, v. 29(3): p. 237-239, 1991 (11 ref, Eng).

Fractionation of the bioactive constituents of the roots of *E.dysodantha* using the brine shrimp lethality bioassay led to the isolation of four bioactive derivatives of benzyl benzoate; benzyl 2-hydroxybenzoate, benzyl 2-hydroxy-6-methoxybenzoate, benzyl 2,6-dimethoxybenzoate and benzyl 2,5-dimethoxybenzoate. The structures of these compounds were identified by spectroscopic methods. This is the first report of these benzyl benzoates being isolated from the genus *Endlicheria*.

9202-1175 Malakov, P.Y, Papanov, G.Y.*, De La Torre, M.C., Rodriguez, B.(Department of Organic Chemistry, Plovdiv University, 24 Tsar Assen Street, BG 4000 Plovdiv, Bulgaria) **Neo-clerodane diterpenoids from Ajuga genevensis.** *Phytochemistry*, v. 30(12): p. 4083-4085, 1991 (10 ref, Eng).

Three new neo-clerodane diterpenoids, ajugavensins A-C, have been isolated from the acetone extract of the aerial parts of *A.genevensis* and their structures established by spectroscopic means and by comparison with closely related compounds.

9202-1176 Manez, S., Jimenez, A., Villar, A.(Unitat de Farmacognosia i Farmacodinamia, Departament de Farmacologia, Facultat de Farmacia, Universitat de Valencia, Spain) **Volatiles of Sideritis mugronensis flower and leaf.** *Journal of Essential Oil Research*, v. 3(6): p. 395-397 , 1991 (6 ref, Eng).

The composition of the essential oil obtained from the flowers and the leaves of *S.mugronensis* in two different stages of their reproductive development is described. The major components of the leaf and flower oils were sabinene: 1.30-10.59 percent and 2.70-15.21 percent; 1,8-cineole: 11.60-17.19 percent and 11.06-28.65 percent; and alpha-bisabolol: 5.57-25.49 percent and 3.40-16.12 percent respectively.

9202-1177 Martin, R.A., Lynch, S.P., Schmitz, F.J., Pordesimo, E.O., Toth, S., Horton, R.Y.(Department of Chemistry, Department of Biological Sciences, Louisiana State University in Shreveport, Shreveport, LA 71115, USA) **Cardenolides from Asclepias asperula subsp. capricornu and A.viridis.** *Phytochemistry*, v. 30(12): p. 3935-3939, 1991 (7 ref, Eng).

6',-O-(E-4-hydroxycinnamoyl) desglucouzarin, the first cardenolide containing a cinnamoyl ester moiety, has been isolated from the ethanolic extract of the milkweed, *A.asperula*. In addition, five known cardenolides were isolated and identified from *A.asperula* and *A.viridis*.

9202-1178 Mericli, A.H., Mericli, F. , Ulubelen, A., Ilarslan, R. (Faculty of Pharmacy, University of Istanbul, Istanbul, Turkey) **Aromatic compounds from Delphinium venulosum.** *Phytochemistry*, v. 30(12): p. 4195-4196, 1991 (8 ref, Eng).

From the non-alkaloidal fractions of *D.venulosum* four known aromatic compounds cis and trans p-coumaric acids, p-hydroxybenzoic acid, protocatechuic acid methyl ester and a new aromatic compound 2,5,6-trihydroxypiperonylic acid methyl ester were isolated together with kaempferol, sitosterol and sitosteryl 3-glucoside. The structures of the compounds were established by spectral data.

9202-1179 Michael, J.P.(Department of Chemistry, University of the Witwater Srand, Wits 2050, South Africa) **Quinoline, quinazoline and acridone alkaloids.** *Natural Product Reports*, v. 8(1): p. 53-68, 1991 (86 ref, Eng).

The review covers the literature published between July 1988 and June 1989 and covers the following alkaloids viz., quinoline alkaloids its occurrence and detection, non-terpenoid quinolines and quinolinones, furoquinoline alkaloids, dimeric quinoline alkaloids its occurrence and synthesis.

9202-1180 Mizuno, M., Iinuma, M., Tanaka, T. , Yamamoto, H., Tu, Z.B.(Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahora-higashi 5 Chome, Gifu 502, Japan) **Sutchuenoside A: a new kaempferol glycoside from the aerial parts of Epimedium sutchuenense.** *Journal of Natural Products*, v. 54(5): p. 1427-1429 , 1991 (5 ref, Eng).

In addition to six known flavonol glycosides (kaempferol-3-O-rhamnoside, kaempferol-3,7-dirhamnoside, quercetin-3-O-glucoside, icariin, diphylloside B, and epimedin C), a new kaempferol glycoside, named sutchuenoside A, was isolated from the leaves of *E.sutchuenense*. The structure of sutchuenoside A has been established as kaempferol 3-O-alpha-L-(4-O-acetyl) rhamnopyranoside-7-O-alpha-L-rhamnopyranoside.

9202-1181 Mizuno, M., Kato, M., Misu, C. , Iinuma, M., Tanaka, T. (Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahora-higashi 5 Chome, Gifu 502, Japan) **Chaenomeloidin: a phenolic glucoside from leaves of Salix chaenomeloides.** *Journal of Natural Products*, v. 54(5): p. 1447-1450 , 1991 (17 ref, Eng).

A new phenolic glucoside, chaenomeloidin, has been isolated from the leaves of *S.chaenomeloides* together with salicin, tremuloidin, tremulacin, salicyloyltremuloidin, hypenin, quercitrin, rutin, isorhamnetin-3-O-glucoside, and isorhamnetin-3-O-rutinoside. Structure of chaenomeloidin has been established to be salicyl alcohol-1-O-beta-D-(3'-benzoyl)glucopyranoside by spectral analysis.

9202-1182 Mookherjee, B.D., Wilson, R.A.(International Flavors and Fragrances, 115 Highway 36, Union Beach, NJ 07735, USA) **Tobacco constituents- their importance in flavor and fragrance chemistry.** *Perfumer & Flavorist*, v. 15(1): p. 27-49, 1990 (Recd. 1992, 127 ref, Eng).

Several simple tobacco components which have had a profound influence on both flavor and fragrance chemistry have been reviewed under the following headings:

hydrocarbons, acids, phenols, nitrogenous compounds, sulfurous compounds, lactones, alcohols and esters, carbonyls(ionones), carbonyls(damascones), other ketones, aldehydes, cyclic ethers and diterpenoids.

9202-1183 Mukherjee, K.S., Chakraborty, C.K. , Laha, S., Bhattacharya, D., Chatterjee, T.P.(Department of Chemistry, Visva-Bharati University, Santiniketan 731 235, WB, India) **1,7-Dihydroxy-3,5-dimethoxyxanthone from Hoppea fastigiata.** *International Journal of Pharmacognosy*, v. 29(3): p. 225-227, 1991 (10 ref, Eng).

The petroleum ether (60-80 degree) extract of the whole plants (aerial parts and roots) of *H.fastigiata* yielded a new xanthone. 1,7-dihydroxy-3,5-dimethoxyxanthone (C15H12O6, mp 162-65 degrees). It has been identified as 1,7-dihydroxy-3,5-dimethoxyxanthone.

9202-1184 Naf, R., Velluz, A.(Firmenich, S.A., Research Laboratories, CH-1211 Geneva 8, Switzerland) **New constituents from Quince brandy.** *Journal of Essential Oil Research*, v. 3(3): p. 165-172 , 1991 (19 ref, Eng).

Solvent extract obtained from a quince brandy (*Cydonia oblonga*) was studied. The 40 new compounds identified by GC/MS and 1H-NMR include mixed acetals of aliphatic and aromatic aldehydes, C13- nor isoprenoids, substituted C12-hydro-oxepins and a compound derived from marmelo-oxide. Most structures are confirmed by synthesis.

9202-1185 Nagao, T., Tanaka, R., Iwase, Y. , Hanazono, H., Okabe, H.*(Faculty of Pharmaceutical Sciences, Fukuoka University, Nanakuma 8-19-1, Jonan-ku, Fukuoka 814-01, Japan) **Studies on the constituents of Luffa acutangula Roxb. 1. Structures of acutosides A-G, oleanane-type triterpene saponins isolated from the herb.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 599-606 , 1991 (11 ref, Eng).

From the herb of *L.acutangula*, seven oleanane-type triterpene saponins, acutosides A-G, were isolated and their structures were determined. Acutoside A is oleanolic acid 3-O-beta-D-glucopyranosyl-(1 to 2)-beta-D-glucopyranoside. Acutosides B, D, E, F and G have a common prosapogenin structure, acutoside A, and only differ in the structures of the ester-linked sugar moieties. Acutoside C is a machaelinic acid (=21beta-hydroxyoleanolic acid) saponin having the same sugar moiety as that of acutoside B.

9202-1186 Nath, S.C., Bordoloi, D.N. , SarmaBoruah, A.K.(Division of Medicinal and Economic Plants and Analytical Chemistry, Regional Research Laboratory, Jorhat 785 006, Assam, India) **Methyl salicylate-the major component of the stembark oil of Betula alnoides Buch-Ham.** *Journal of Essential Oil Research*, v. 3(6): p. 463-464 , 1991 (1 ref, Eng).

The essential oil of the bark of *B.alnoides*(Indian Birch; Khringjau) growing wild in the Northeastern region of India was found to contain methyl salicylate (98.2 percent) as the major component.

9202-1187 Ndiege, I.O., Budenberg, W.J. , Lwande, W., Hassanali, A.(International Centre of Insect Physiology and Ecology(ICIPE), PO Box 30772, Nairobi, Kenya) **Volatile components of banana pseudostem of a cultivar susceptible to the banana weevil.** *Phytochemistry*, v. 30(12): p. 3929-3930, 1991 (19 ref, Eng).

Volatiles from banana (*Musa* sp githumo cultivar) pseudostem were trapped using porapakS. The trapped volatiles identified included alpha-pinene, beta-pinene, beta-myrcene, limonene, alpha-cubebene, alpha-copaene, alpha-cedrene, beta-caryophyllene and alpha-humulene.

9202-1188 Negueruela, A.V., Perez-Alonso, M.J. , Burzaco, A. (Departamento de Biologia Vegetal I(Botanica), Facultad de Biologia, Universidad Complutense 28040 Madrid, Spain) **Chemical constituents of the volatile oil of Scandix australis.** *Journal of Essential Oil Research*, v. 3(6): p. 469-470 , 1991 (5 ref, Eng).

Eighteen components have been characterized by GC, GC/MS, IR, 13C-NMR and 1H-NMR analysis in the volatile oil of *S.australis*. The major constituents were found to be trans-anethole (86.00 percent) and methyl chavicol (8.47 percent).

9202-1189 Nghia, N.T., Valka, I., Weigl, E. , Simanek, V., Cortes, D., Cave, A.(Research Institute of Natural Products, Hanoi, Vietnam) **Alkaloids from leaves of Phaeanthus vietnamensis.** *Fitoterapia*, v. 62(4): p. 315-318, 1991 (9 ref, Eng).

Of eight isoquinoline alkaloids isolated from the leaves of *P.vietnamensis*, five were identified as the known isoquinolines N-methyl-6,7-dimethoxyisoquinolone and N-methylcorydaldine, the phenanthrenes argentinine and atherosperminine, the secobenzylisoquinoline petalinemethine. Two new bisbenzylisoquinolines were characterized as 1S, 1'R-(-)-7,7'-O,O'-dimethylgrisabine and 1S, 1'R-(-)-7-O-methylgrisabine; one was identified as a new secobisbenzylisoquinoline vietnamine. The antimicrobial activities of plant extracts and (-)-7,7'-O-O'-dimethylgrisabine are reported.

9202-1190 Nishina, A., Kubota, K., Kameoka, H., Osawa, T.(Food Research Laboratory, Nippon Oil & Fats Co., Ltd, Tokyo 114, Japan) **Antioxidizing component, musizin, in**

Rumex japonicus Houtt. *Journal of the American Oil Chemists' Society*, v. 68(10): p. 735-739, 1991 (17 ref, Eng).

A substance (musizin) with antioxidant properties was obtained from the hexane extract of *R.japonicus* roots, and identified as 2-acetyl-1,8-dihydroxy-3-methyl naphthalene. Its antioxidant activity in various fats was found to be higher than that of butyl hydroxyanisole and delta-tocopherol together, musizin and tocopherol have a synergistic effect.

9202-1191 Nkengfack, A.E., Meyer, M. , Tempesta, M.S., Fomum, Z.T.*(Department of Organic Chemistry, University of Yaounde, BP 812 Yaounde, Cameroun) **Auriculatin 4'-O-glucoside: A new prenylated isoflavone glycoside from Erythrina eriotricha.** *Planta Medica*, v. 57(5): p. 488-491, 1991 (20 ref, Eng).

In addition to known compounds, sigmoidin C and 8-(3,3-dimethylallyl)-erythrinin C, also called senegalensin, a new isoflavone glycoside designated auriculatin 4'-O-glucoside was isolated from the chloroform extract of the stem bark of *E.eriotricha*. Its structure was elucidated as 7,6-(2''',2'''-dimethyl-2 H-pyrano)-2',5-dihydroxy-8-(3,3-dimethylallyl)-isoflavone 4'-O-beta-D-glucoside on the basis of spectroscopic methods and chemical evidence.

9202-1192 Ochir, G., Budesinsky, M.*, Motl, O.(Institute of Organic Chemistry and Biochemistry, Czechosolvak Academy of Sciences, 166 10 Prague 6, Czechoslovakia) **3-Oxa-guaianolides from Achillea millefolium.** *Phytochemistry*, v. 30(12): p. 4163-4165, 1991 (12 ref, Eng).

Aerial parts of *A.millefolium*(Mongolian origin) yielded besides desacetylmatricarin two sesquiterpene lactones of a new 3-oxa-guaianolide type, 8-acetyl egelolide and 8-angeloyl egelolide.

9202-1193 Ohmiya, S., Kubo, H., Nakaaze, Y. , Saito, K., Murakoshi, I., Otomasu, H.(Faculty of Pharmaceutical Sciences, Hoshi University, Ebara 2-4-41, Shinagawa-ku, Tokyo 142, Japan) **(-)-Camoensidine N-oxide; A new alkaloid from Maackia tashiroi.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1123-1125 , 1991 (11 ref, Eng).

A new alkaloid was isolated from the stems of *M.tashiroi* together with (-)-camoensidine, tashiromine, ammodendrine and six known lupin (quinolizidine) alkaloids. The structure of the new alkaloid was characterized as the N15-oxide of (-)-camoensidine, possessing an indolizidine-quinolizidine ring system, by a combination of spectroscopic and chemical methods.

9202-1194 Ohsaki, A., Kasetani, Y., Asaka, Y. , Shibata, K., Tokoroyama, T., Kubota, T.(School of Medicine, Kinki University, Osaka-sayama, Osaka 589, Japan) **Clerodane diterpenoids from the roots of Portulaca pilosa.** *Phytochemistry*, v. 30(12): p. 4075-4077, 1991 (9 ref, Eng).

Three trans-clerodane diterpenoids, pilosanol A, B and C, the last compound being a glucoside, have been isolated from the roots of *P.pilosa*. They show a marked contrast in skeletal type with the constituents of aerial part. Evolutionary changes in the biosynthetic abilities of *Portulaca* species is discussed.

9202-1195 Omata, A., Yomogida, K., Nakamura, S., Hashimoto, S., Arai, T., Furukawa, K.(Shiseido Product Research Laboratories, 1050 Nippa-cho, Kohoku-ku, Yokohama-shi, Kanagawa 223, Japan) **Volatile components of plumeria flowers. Part 1. Plumeria rubra forma acutifolia (Poir.) Woodson cv. 'Common Yellow'.** *Flavour and Fragrance Journal*, v. 6(4): p. 277-279 , 1991 (6 ref, Eng).

The essential oil of *P.rubra* forma *acutifolia* cv. 'Common Yellow' growing in Hawaii was extracted by simultaneous distillation and extraction (SDE). The essential oil was analysed with GC and GC-MS, and a total of 74 compounds were identified. Linalol, phenylacetaldehyde, trans, trans-farnesol, beta-phenylethyl alcohol, geraniol, alpha-terpineol, neral and geranial were found to make a major contribution to the floral scent of this flower.

9202-1196 Onayade, O.A., Scheffer, J.J.C.* , Svendsen, A.B. (Division of Pharmacognosy, Center for Bio-Pharmaceutical Sciences, Leiden University, Gorlaeus Laboratories, PO Box 9502, 2300 RA Leiden, The Netherlands) **Polynuclear aromatic compounds and other constituents of the herb essential oil of Salvia coccinea Juss. ex Murr.** *Flavour and Fragrance Journal*, v. 6(4): p. 281-289 , 1991 (62 ref, Eng).

The essential oils from herb samples of *S.coccinea* were analysed by GLC,LSC and GC-MS. The plant material was collected from the same location in Ile-Ife, Nigeria, in three consecutive years. About 40 components including polynuclear aromatic compounds and their alkyl derivatives were identified in some oil samples. Their major components were acenaphthene (18 percent), trans-hex-2-enal (11 percent) and globulol (11 percent) in 1987, globulol (65 percent) and aromadendrene (11 percent) in 1988, and 2,5-dimethoxy-p-cymene (29 percent) and globulol (16.5 percent) in 1989. The polynuclear aromatic compounds detected most likely originate in the plants.

9202-1197 Opletal, L., Sovova, M., Filipova, P., Hanus, V., Heyrovsky, J.(Faculty of Pharmacy, Charles University,

Heyrovskeho 1203, 501 65 Hradec Kralove, CSFR, Czechoslavakia) **(-)-Loliolide from Coronilla varia.** *Fitoterapia*, v. 62(3): p. 285, 1991 (15 ref, Eng).

(-)-Loliolide (215.5 mg) was isolated from 35 kg of dried *C.varia* plant along with previously isolated constituents.

9202-1198 Orsini, F., Pelizzoni, F., Verotta, L.*(Centro di Studio sulle Sostanze Organiche Naturali del CNR, Dipartimento di Chimica Organica e Industriale, via Venezian 21, 20133 Milano, Italy) **Saponins from Albizzia lucida.** *Phytochemistry*, v. 30(12): p. 4111-4115, 1991 (10 ref, Eng).

Three main saponins, echinocystic acid glycosides, were isolated from the seeds of *A.lucida*. Their structures were established by spectral analyses and chemical and enzymatic transformations.

9202-1199 Otsuka, H., Yamanaka, T., Takeda, Y., Sasaki, Y., Yamasaki, K., Takeda, Y. , Seki, T.(Institute of Pharmaceutical Sciences, Hiroshima University School of Medicine, 1-2-3 Kasumi, Minami-ku, Hiroshima 734, Japan) **Fragments of acylated 6-O-alpha-L-rhamnopyranosylcatalpol from leaves of Premna japonica.** *Phytochemistry*, v. 30(12): p. 4045-4047, 1991 (8 ref, Eng).

Five monoacyl rhamnopyranoses were isolated from leaves of *P.japonica*. The structures were determined to be 2- and 3-O-trans-isoferuloylrhamnopyranoses, 2- and 3-O-trans-p-methoxycinnamoylrhamnopyranoses and 2-O-cis-p-methoxycinnamoylrhamnopyranose.

9202-1200 Pal, B.C., Achari, B.A., Price, K.R.(Indian Institute of Chemical Biology, Calcutta 700 032, WB, India) **Triterpenoid glucoside from Barringtonia acutangula.** *Phytochemistry*, v. 30(12): p. 4177-4179, 1991 (6 ref, Eng).

The structure of a new triterpenoid glucoside from *B.acutangula* seeds was deduced as 2alpha-3beta,19alpha-trihydroxy-olean-12-ene-23, 28-dioic acid 28-O-beta-D-glucopyranoside from chemical reactions and spectral data.

9202-1201 Parihar, R., Shah, G.C., Mathela, C.S.*, Pant, A.K. (Chemistry Department, Kumaun University, Nainital 263 002, UP, India) **Constituents of Boenninghausenia albiflora root.** *Fitoterapia*, v. 62(3): p. 277-278, 1991 (13 ref, Eng).

Bicyclogermacrene, bicycloelemene, pregleijrene, geijerene, delta-elemene and 3-(1,1-dimethyllallyl) xanthyletin were isolated from the roots of *B.albiflora*.

9202-1202 Pedro, L.G., Barroso, J.G., Marques, N.T., Ascensao, I., Pais, M.S.S., Scheffer, J.J.C.(Departamento de Biologia Vegetal, Faculdade de Ciencias de Lisboa, Bloco C-2, Piso 1, Campo Grande 1700 Lisboa, Portugal) **Composition of the essential oil from sepals of Leonotis leonurus R.Br..** *Journal of Essential Oil Research*, v. 3(6): p. 451-453 , 1991 (4 ref, Eng).

The essential oil isolated by hydrodistillation from the sepals of *L.leonurus* was analyzed by GC and GC/MS. Thirty-three oil components were identified, which constituted more than 90 percent of the oil. The major components were alpha-pinene (12.6 percent), limonene (5.6 percent), beta-caryophyllene (30.8 percent), alpha-humulene (7.8 percent) and caryophyllene oxide (8.4 percent).

9202-1203 Pepalla, S.B., Jammula, S.R. , Telikepalli, H., Bhattiprolu, K.R., Rao, K.V.J.*(Department of Chemistry, Nagarjuna University, Nagarjunanagar 522 510, Guntur(Dt), AP, India) **Naphthalene glucoside lactone from Rhamnus wightii.** *Phytochemistry*, v. 30(12): p. 4193-4194, 1991 (12 ref, Eng).

A new naphthalene glucoside lactone was isolated from the acetone extract of the stem bark of *R.wightii*. Cynodontin, chrysophanol, physcion, musizin, lupeol, sitosterol, 7-hydroxy-5-methoxyphthalide, emodin, sitosterol glycoside, beta-sorigenin are the known compounds; beta-sorigenin may be an artifact of its glucoside. The co-occurrence of two lactone ring compounds, 7-hydroxy-5-methoxyphthalide and the naphthalide glucoside is the significant feature of this plant.

9202-1204 Perez-Alonso, M.J., Velasco-Negueruela, A. , Lopez-Saez, A.(Departamento de Biologia Vegetal 1, Botanica Facultad de Biologia, Universidad Complutense, 28040 Madrid, Spain) **The essential oil of Cleonia lusitanica.** *Journal of Essential Oil Research*, v. 3(6): p. 441-442 , 1991 (4 ref, Eng).

The essential oil obtained from *C.lusitanica* grown is Spain was analyzed by thin-layer chromatography GC and GC/MS. It was found that the major components were alpha-pinene (33.94-17.66 percent) and limonene (33.37-64.75 percent).

9202-1205 Pfander, H., Stoll, H.(Institute of Organic Chemistry, University of Berne, Berne, Switzerland) *Natural Product Reports*, v. 8(1): p. 69-95 , 1991 (153 ref, Eng).

This review covers the chemistry published during the period 1987-1988, review topics include acyclic, and cyclic monoterpenes, labdane, clerodane, serrulatane , and kaurane diterpenes, nor-diterpenes, triterpenes, dammaranes and baccharanes. Biological activity of the diterpenoids has been included in this review.

9202-1206 Piccaglia, R., Marotti, M. , Galletti, G.C.(Istituto di Agronomia generale e Coltivazioni erbacee Universita di Bologna, Via Filippo Re 8, 40126 Bologna, Italy) **Characterization of essential oil from a Satureja montana L. chemotype grown in nothern Italy.** *Journal of Essential Oil Research*, v. 3(3): p. 147-152 , 1991 (13 ref, Eng).

S.montana grown in Italy has been characterized on the basis of its essential oil composition. Qualitative and quantitative analyses of steam distilled oil were performed by GC and GC/MS. Forty-four compounds were identified (30 monoterpenes and 14 sesquiterpenes). Over two consecutive seasons, oil produced was found to contain carvacrol (26.38-41.23 percent), gamma-terpinene (1.40-6.16 percent) and p-cymene (11.00-16.32 percent) as main constituents. Environmental parameters such as precipitation and temperature were found to have an effect on the oil yield and composition of the oil produced.

9202-1207 Popielas, L., Moulis, C., Keita, A. , Fouraste, I., Bessiere, J.M.*(Ecole Nationale Superieure de Chimie, 8 rue de l'Ecole Normale, F-34075 Montpellier Cedex, France) **The essential oil of Cymbopogon giganteus.** *Planta Medica*, v. 57(6): p. 586-587, 1991 (8 ref, Eng).

The composition of the essential oil obtained by hydrodistillation from the inflorescence of *C.giganteus* has been reported. Eighteen of the twenty-one constituents in the oil were identified. These represented 97 percent of the total compounds detected. Most of them are oxygenated monoterpenes, with a p-menthadienic feature.

9202-1208 Pratap Kumar, K., Nia, M.A. , Gunasekar, D.(Department of Chemistry, Sri Venkateswara University, Tirupati 517 502, AP, India) **Chemical constituents of the heartwood of Cassia montana.** *Indian Journal of Natural Products*, v. 7(1): p. 18-19 , 1991 (4 ref, Eng).

The isolation and characterization of four flavonoid constituents, viz. kaempferol, quercetin,kaempferol-3-O-rutinoside and rutin from the heartwood of *C.montana* are reported.

9202-1209 Qiu, S.X:, Zhang, Z.X. , Lin, Y., Jun, Z.(Kunming Institute of Botany, Academia Sinica, Kunming, People's Republic of China) **Two new glycosides from the roots of Cynanchum versicolor.** *Planta Medica*, v. 57(5): p. 454-456, 1991 (7 ref, Eng).

Two new glycosides named cynanversicoside-A and -B, together with glaucogenin-C as the aglycone, were isolated from the Chinese crude drug "Pai-Wei", *C.versicolor*. Their structures were determined on the basis of spectral and chemical evidence as glaucogenin-C3-O-beta-D-cymaropyranosyl-(1 to4)-alpha-L-diginopyranosyl-(1 to 4)-beta-D-thevetopyranoside and glaucogenin-C 3-O-beta-D-glucopyranosyl-(1 to 4)-beta-D-cymaropyranosyl-(1 to 4)-alpha-L-diginopyranosyl-(1 to 4)-beta-D-thevetopyranoside.

9202-1210 Quetin-Leclercq, J., Tits, M. , Angenot, L.*, Bisset, N.G.(Institut de Pharmacie, Universite de Liege, rue Fusch 5, B-4000 Liege, Belgium) **Alkaloids of Strychnos usambarensis stem bark.** *Planta Medica*, v. 57(5): p. 501, 1991 (12 ref, Eng).

The isolation and identification of the alkaloids present in two samples (liane form and tree form of *S.usambarensis*) of stem bark has been reported. Both the samples furnished less than 0.5 percent total alkaloid extract. The composition of alkaloids appeared to be intermediate between that of leaves and roots and C-11 and C-12 substituted alkaloids were absent from liane form. The findings are of taxonomic interest, because they show that the enzyme potential of two forms is different.

9202-1211 Rao, G.X., Sun, H.D., Lin, Z.W. , Hu, R.Y.*(Xichang Istitute for Drug Control, Xichang 615 000, China) **Studies on the chemical constituents of the traditional Chinese medicine "Yun Qian-Hu" (Peucedanum rubricaule Shan et Shch.).** *Acta Pharmaceutica Sinica*, v. 26(1): p. 30-36, 1990 (17 ref, Chi, Eng).

A new coumarin-glycoside and twelve known coumarins together with seven other known compounds have been isolated from the roots of *P.rubricaule*. The new coumarin-glycoside named rubricauloside, has been elucidated as 5,7-dimethoxy-8-{2'-hydroxy-3'-methyl, 3'-O-beta-D-apiofuranosyl(1 to 6)-beta-D-glucopyranosyl-butyl}-coumarin by means of spectral and chemical analysis.

9202-1212 Rao, J.R., Ahamed, M.A. , Subramanyam, G., Elahi Sahib, P.(Department of Chemistry, Sri Venkateswara University, Post Graduate Centre, Cuddapah 516 004, AP, India) **Chemical investigation of Acacia leucophloea flowers.** *Indian Journal of Natural Products*, v. 7(1): p. 20-21 , 1991 (1 ref, Eng).

Chemical investigation of *A.leucophloea* flowers revealed the presence of four aliphatic (octacosane, triacontane, triacontanol and (+)-pinitol) and seven aromatic compounds (gallic and p-hydroxybenzoic acids methyl gallate, kaempferol, quercetin, quercitrin and rutin).

9202-1213 Rao, K.V., Sreeramulu, K. , Gunasekar, D.(Department of Chemistry, Sri Venkateswara University, Tirupati 517 502, AP, India) **Chemical constituents of the genus Rhynchosia.** *Indian Journal of Natural Products*, v. 7(1): p. 3-12 , 1991 (43 ref, Eng).

The review presents a comprehensive account of the constituents of the genus *Rhynchosia*. An attempt is made to establish the chemosystematic position of *R.cyanosperma* by comparing its flavonoids with the flavonoids of other *Rhynchosia* species. The biological activities of some of the compounds isolated have also been discussed.

9202-1214 Rasoanaivo, P., Galeffi, C.* , Multari, G., Nicoletti, M.(Laboratorio di Chimica del Farmaco, Istituto Superiore di Sanita, V.le R. Elena 299, I-00161 Roma, Italy) **7-Caffeoylloganin: An iridoid glucoside from Cassinopsis madagascariensis.** *Planta Medica*, v. 57(5): p. 486-487, 1991 (9 ref, Eng).

7-Caffeoylloganin was isolated from leaves of *C.madagascariensis* and its structure elucidated by spectroscopic methods.

9202-1215 Reher, G., Reznicek, G., Baumann, A.(Lehrstuhl fur Pharmakognosie, Universitat Hamburg, Bundesstrasse 43, D-2000 Hamburg 13, Federal Republic of Germany) **Triterpenoids from Sarcopoterium spinosum and Sanguisorba minor.** *Planta Medica*, v. 57(5): p. 506, 1991 (7 ref, Eng).

Extracts of the dried root bark of *S.spinosum* were subjected to DCCC to give 23-hydroxytormentic acid ester glucoside (1), 23-hydroxytormentic acid (2) and tormentic acid ester glucoside (3). Compounds 1 and 2 were isolated also from the roots and the aerial parts of *S.minor*. The spectral data (mass, IR, 1H-NMR, and 13C-NMR of 1,2 and 3 the acetates of 1 and 2 were found to be in a distinct agreement with those reported in literature.

9202-1216 Robins, D.J.(Department of Chemistry, University of Glasgow, Glasgow G12 8QQ, UK) **Pyrrolizidine alkaloids.** *Natural Product Reports*, v. 8(3): p. 213-221, 1991 (63 ref, Eng).

Alkaloids of the families of Boraginaceae, Asteraceae (Compositae), Gramineae, Fabaceae (Leguminosae) and the pharmacological and biological properties of these has been reviewed. The review covers the literature published between 1989 and June 1990.

9202-1217 Rodriguez-Hahn, L., Fonseca, G.(Instituto de Quimica, Universidad Nacional Autonoma de Mexico, Circuito, Exterior, Ciudad Universitaria, Coyoacan 04510, Mexico, DF) **Cardenolide content of Asclepias linaria.** *Phytochemistry*, v. 30(12): p. 3941-3942, 1991 (8 ref, Eng).

The cardenolides of the aerial parts of *A.linaria* have been isolated and identified as the known calactin, calotoxin, proceroside, gomphoside, desglucouzarin and the new cardenolide 6'-p-coumaroyl desglucouzarin.

9202-1218 Rojas, A., Villena, R., Jimenez, A. , Mata, R.* (Laboratorio de Fitoquimica, Departamento de Farmacia, Facultad de Quimica, Universidad Nacional Autonoma de Mexico, Coyoacan 04510, Mexico DF, Mexico) **Chemical studies on Mexican plants used in traditional medicine, 21. Ratibinolide II, a new sesquiterpene lactone from Ratibida latipalearis.** *Journal of Natural Products*, v. 54(5): p. 1279-1282 , 1991 (10 ref, Eng).

Ratibinolide II (C15H18O4, mp 276-78 degree C), a new eudesmanolide, and a known flavanone hispidulin have been isolated from *R.latipalearis*. The structure elucidation of the new compound was unequivocally established by spectral and X-ray crystallographic analysis.

9202-1219 Rucker, G., Mayer, R., Shin-Kim, J.S.(Pharmazeutisches Institut, Rheinische Friedrich-Wilhelms-Universitat Bonn, Kreuzbergweg 26, D-5300 Bonn, Federal Republic of Germany) **Triterpene saponins from the Chinese drug "Daxueteng"(caulis Sargentodoxae).** *Planta Medica*, v. 57(5): p. 468-470, 1991 (13 ref, Eng, Ger).

From the Chinese drug "Daxueteng" (caulis Sargentodoxae: *Sargentodoxa cuneata* syn. *Holboellia cuneata* catechin and two known triterpene saponins, rosamultin(7) and kajiichigoside F1(8) have been isolated. Some hitherto unknown reaction products of the saponins are described. Both 7 and 8 show haemolytic and *in vitro* antiviral activity.

9202-1220 Sakar, M.K., Ezer, N., Engelshowe, R.(Hacettepe University, Faculty of Pharmacy, Department of Pharmacognosy, 06100 Ankara, Turkey) **Constituents of Hypericum montbretii.** *International Journal of Pharmacognosy*, v. 29(3): p. 228-230, 1991 (10 ref, Eng).

From the ethanol extract of the aerial parts of *H.montbretii*, quercetin, myricetin, (+)-catechin, quercitrin, isoquercitrin, hyperoside, biapigenin and chlorogenic acid were isolated and identified.

9202-1221 Sakar, M.K., Ercil, D., Engelshowe, R.(Department of Pharmacognosy, Faculty of Pharmacy, Hacettepe University 06100, Ankara, Turkey) **Procyanidin in cones of Pinus halepensis.** *International Journal of Pharmacognosy*, v. 29(3): p. 221-224, 1991 (11 ref, Eng, Ger).

From the unripe cones of *P.halepensis* (+)-catechin, (-)-epicatechin and (+)-gallocatechin as peracetate derivatives and procyanidin B1, B3, B4, B6 and B7 as decaacetates were isolated and identified. The major components were (+)-catechin, procyanidin B3 and procyanidin B6. The unripe cones contained 4.63 percent total procyanidins.

9202-1222 Sanz, J.F., Garcia-Lliso, V., Marco, J.A., Valles-Xirau, J.(Departamento de Quimica Organica, Facultad de

Ciencias Quimicas, Universidad de Valencia, E-46100 Burjassot, Valencia, Spain) **Cadinane derivative from Artemisia crithmifolia.** *Phytochemistry*, v. 30(12): p. 4167-4168, 1991 (9 ref, Eng).

The aerial parts of *A.crithmifolia* yielded a new cadinane derivative, six known flavonoids, three known coumarins, four known acetophenone derivatives and the acetylene dehydrofalcarindiol.

9202-1223 Sashida, Y., Kawashima, K., Mimaki, Y.(Tokyo College of Pharmacy, Horinouchi 1432-1, Hachioji, Tokyo 192-03, Japan) **Novel polyhydroxylated steroidal saponins from Allium giganteum.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 698-703 , 1991 (7 ref, Eng).

From the bulbs of *Allium giganteum*, three new steroidal saponins, (25R)-3-O-acetyl-5alpha-spirostan-2alpha,3beta,5alpha,6beta-tetraol 2-O-beta- D-glucopyranoside (2), (25R)-5alpha-spirostan-2alpha, 3beta,5alpha,6beta-tetraol 2-O-beta- D-glucopyranoside (3) and (25R)-3-O-benzoyl-5alpha-spirostan-2alpha,3beta,5alpha,6beta-tetraol 2-O-beta-D-glucopyranoside (4), have been isolated. The new saponins are unique in structure having the sugar moiety at the C-2 hydroxyl position on the steroidal skeleton.

9202-1224 Sashida, Y., Ogawa, K.*, Kitada, M. , Karikome, H., Mimaki, Y., Shimomura, H.(Tokyo College of Pharmacy, 1432-1 Horinouchi, Hachioji-shi, Tokyo 192-03, Japan) **New aurone glucosides and new phenylpropanoid glucosides from Bidens pilosa.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 709-711 , 1991 (7 ref, Eng).

Three new glucosides of (Z)-6,7,3',4'-tetrahydroxyaurone, (Z)-7-O-beta-D-glucopyranosyl-6,7,3',4'-tetrahydroxyaurone, (Z)-6-O-(6-O-p-coumaroyl-beta-D-glucopyranosyl)-6,7,3',4'-tetrahydroxy aurone, (Z)-6-O-(6-O-acetyl-beta-glucopyranosyl)-6,7,3',4'-tetra hydroxyaurone, together with (Z)-6-O-beta-D-glucopyranosyl-6,7,3',4'-tetrahydroxyaurone, and two new phenylpropanoid glucosides, 4-O-(6-O-p-coumaroyl-beta-D-gluycopyranosyl)-p-coumaric acid and 4-O-(2-O-acetyl-6-O-p-coumaroyl-beta-D-glucopyranosyl)-p-coumaric acid, have been isolated from the fresh leaves of *B.pilosa*. Their structures have been elucidated on the basis of spectral data and chemical correlation.

9202-1225 Satake, T., Coskun, M., Hori, K. , Saiki, Y., Tanker, M. (Faculty of Pharmaceutical Sciences, Kobe-Gakuin University, Nishi-ku, Kobe 651-21, Japan) **Acetophenone and three naphthalides from Turkish Rhamnus libanoticus.** *Phytochemistry*, v. 30(12): p. 4191-4192, 1991 (7 ref, Eng).

A new acetophenone glycoside and two new naphthalide glycosides have been isolated from the bark of Turkish *R.libanoticus* together with 7-hydroxy-5-methoxyphthalide 7-O-beta-D-glucoside. The structures of the new compounds were elucidated by spectrosocopic methods as 2,6-dihydroxy-4-methoxyacetophenone 2-O-beta-rutinoside, 8,9-dihydroxy-6-methoxynaphthalide 8-O-beta-rutinoside, 8,9-dihydroxy-6-methoxynaphthalide 8-O-beta-D-glucoside, respectively.

9202-1226 Saxton, J.E.(School of Chemistry, The University, Leeds LS2 aJT, UK) **Recent progress in the chemistry of indole alkaloids and mould metabolites.** *Natural Product Reports*, v. 8(3): p. 251-307, 1991 (228 ref, Eng).

The review covers the literature published between June 1989 and June 1990. The review includes, simple alkaloids, non-tryptamines, ergot alkaloids, yohimbine group of alkaloids, strychnine alkaloids, sarpagine, ajmaline and picraline group of alkaloids, cinchona and his indole alkaloids.

9202-1227 Schenkel, E.P., Werner, W., Schulte, K.E.(Institut fur Pharmazeutische Chemie, Universitat Munster, Hittorfstr.58-62, D-4400 Munster, Federal Republic of Germany) **Saponins from Thinouia coriaceae.** *Planta Medica*, v. 57(5): p. 463-467, 1991 (23 ref, Eng, Ger).

The stems of *T.coriacea* afforded eight glycosides of oleanolic acid. Structures were assigned based on data from partial hydrolysis, 13C-NMR and mass spectral procedures as: 3-O-alpha-L-arabinopyranoside (1), 3-O-alpha-L-rhamnopyranosyl-(1 to 2)-alpha-L-arabinopyranoside (2),3-O-beta-D-glucopyranosyl-(1 to 4)-alpha-L-arabinopyranoside (3),3-O-beta-D-glucopyranosyl-(1 to 3)-alpha-L-rhamnopyranosyl-(1 to 2)-alpha-L-arabinopyranoside (4),3-O-alpha-L-rhamnopyranosyl-(1 to 2){beta-D-glucopyranosyl-(1 to 4)}-alpha-L-arabinopyranoside (5),3-O-beta-D-xylopyranosyl-(1 to 3)-alpha-L-rhamnopyranosyl-(1 to 2) {beta-D-glucopyranosyl-(1 to 4)}-alpha-L-arabinopyranoside (6), 3-O-beta-D-glucopyranosyl-(to 3)-alpha-L-rhamnopyranosyl-(1 to 2) {beta-D-glucopyranosyl-(1 to 4)}-alpha-L-arabinopyranoside (8). Saponin 7 showed the same sugars as 8, but the attachment between the sugars could not be elucidated. The same saponins were present in the roots, but not in the leaves.

9202-1228 Seguineau, C., Richomme, P. , Fournet, A., Guinaudeau, H., Bruneton, J.(CEPM, 16Bd, Daviers, F-4910Q Angers, France) **Isoquinoline alkaloids from Cardiopetalum calophyllum.** *Planta Medica*, v. 57(6): p. 581, 1991 (9 ref, Eng).

From the trunk barks of *C.calophyllum* eight known alkaloids have been isolated. They are isoquinolone (N-methyl-6,7-dimethoxyisoquinolone), aporphines {(+)-isoboldine, (-)-anonaine, (-)-norushinsunine, and (-)-asimilobine, oxaporphine (liriodenine), morphinanedienone (-)-pallidine, and bisbenzyltetrahydroisoquinoline {(-)-dauricine}. Identification of each compound was carried out by comparison of its physical and spectral data with those already published and by cochromatography (TLC) with authentic samples.

9202-1229 Seong, B.W., Yook, C.S., Chung, H.S., Woo, W.S.*(Natural Product Research Institute, Seoul National University, Seoul, Korea) **New cis-khellactone esters from Angelica flaccida.** *Planta Medica*, v. 57(5): p. 496-497, 1991 (6 ref, Eng).

The ether-soluble fraction of *A.flaccida* afforded two new pyranocoumarins named badycoumarins A and B. The badycoumarins on treatment with 0.5 N NaOH in dioxan at 60 degree C for 1 h gave cis-khellactone, hydroxycinnamic acid, and methylbutenoic acid (angelic acid from A senecioic acid from B) together with trans-khellactone formed as a result of epimerisation at C-4'. On partial hydrolysis with 0.5N KOH in dioxan at room temperature for 5 min the badycoumarins yielded hydroxycinnamic acid along with cis-khellactone monoester (3'-angelate ester from A and 3'-senecioate ester from B).

9202-1230 Shah, N.C.(Central Institute of Medicinal and Aromatic Plants, CSIR Post Bag No.1, P.O. Ram Sagar Misra Nagar, Lucknow 226 016, UP, India) **Chemical composition of the pericarp oil of Zanthoxylum armatum DC.** *Journal of Essential Oil Research*, v. 3(6): p. 467-468 , 1991 (8 ref, Eng).

Essential oil from the pericarp of the fruit of *Z.armatum*(syn.*Z.alatum)*, which grows wild in the U.P. hills was examined by GC and GC/MS. The oil (10-12 percent) was found to contain 25 constituents which represent 99.6 percent of the total oil. The major constituents were linalool (72 percent), methyl cinnamate (12.2 percent), limonene (6.2 percent) and beta-phellandrene (5.3 percent).

9202-1231 Shaifulla, Khan, M.S., Kamil, M. , Ilyas, M.(Department of Chemistry, Aligarh Muslim University, Aligarh 202002, UP, India) **Chemical constituents of Rhododendron arboreum Sm. (Ericaceae).** *Indian Drugs*, v. 29(2): p. 83-84, 1991 (2 ref, Eng).

A flavone glycoside 5,2'-dihydroxy-7-methoxy-4'-O-glucoside and demethyl ester of terphthalic acid were isolated from the leaves of *R.arboreum*. The presence of 5,2'-dihydroxy-7-methoxy-4'-O-glucoside in *Rhododendron* species has been reported for the first time.

9202-1232 Sharma, R.K., Srivastava, D.N.(Department of Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Jabalpur, MP, India) **Phytochemical study of Teeburb and its ingredients.** *Indian Journal of Indigenous Medicines*, v. 7(2): p. 5-8 , 1991 (7 ref, Eng).

Teeburb, is an indigenous veterinary product (marketed by M/S Indian) made up of *Cucurma longa, Cedrus deodara, Berberis aristata* and *Pinus griffithi*. Phytochemical studies revealed the presence of alkaloids, glycosides, tannins, reducing sugars, and resins.

9202-1233 Shibata, S.(Meiji College of Pharmacy, Nozawa 1-35-23, Setagaya-ku, Tokyo, 154, Japan) **Supplement to the scientific investigation of the crude drugs stored in Shosoin. II. "Rhubarb".** *Journal of Japanese Botany*, v. 66(2): p. 70-75, 1991 (5 ref, Jap , Eng).

The rhubarb stored in "Shosoin" since 8th century was first (1948-49) investigated morphologically and chemically to be identified as a high-grade Chinese rhubarb, the rhizome of *Rheum palmatum* or *R.palmatum* var *tanguticum*. Since the purgative principles of rhubarb have been identified later as sennosides and the chromatographical methods for determination of the principles have remarkably been advanced recently, a renewed investigation on the Shosoin rhubarb has been performed. By the HPLC analysis the presence of sennoside A and B along with other anthraquinones has been proved and their content determined. It is noted that the unstable bianthronyl glucosides, sennosides A and B, have been retained in the drug specimens during the period of more than 1200 years.

9202-1234 Shibata, S.(Meiji College of Pharmacy, 1-35-23, Nozawa, Setagayaku, Tokyo, 154 Japan) **Supplement to the scientific investigation of the crude drugs stored in Shosoin.I. "Ginseng".** *Journal of Japanese Botany*, v. 66(1): p. 1-6, 1991 (9 ref, Jap, Eng).

The ginseng stored in Shosoin, the Imperial Treasure house in Nara, since 8th century was examined morphologically by the scientific investigation group from 1948 to 1949. A chemical examination has now been performed to identify the ginseng based on the established saponin constituents in comparison with those of ginseng available on the present drug market. Thin layer chromatography in connection with a dual wave-length zig-zag chromatogram scanner showed that the Shosoin ginseng gave an identical profile of chromatogram with that given by the present ginseng sample. Thus the ginseng in Shosoin has undoubtedly been identified as the native root of *Panax ginseng* of high quality introduced from China in Tang dynasty.

9202-1235 Siddiqui, S., Siddiqui, B.S., Akhtar Naeed, Sabira Begum (HEJ Research Institute of Chemistry, University of Karachi, Karachi 75270, Pakistan) **Isolation and structure elucidation of obtusilinin, a new triterpenoid and 27-p-Z-coumaroyloxyursolic acid from the leaves of Plumeria obtusa.** *Journal of the Chemical Society of Pakistan*, v. 13(2): p. 115-119, 1991 (8 ref, Eng).

The fresh spring leaves of *P.obtusa* on methanol extraction have afforded a new triterpenoid obtusilinin (C30H46O3) along with 27-p-Z-coumaroyloxyursolic acid. Their structures have been discussed.

9202-1236 Singh, A.K., Gupta, K.C., Brophy, J.J.(Central Institute of Medicinal and Aromatic Plants, Regional Centre, Pantnagar 263 149, UP, India) **Volatile constituents of the essential oil of Eucalyptus bridgesiana growing in India.** *Journal of Essential Oil Research*, v. 3(6): p. 449-450 , 1991 (4 ref, Eng).

The essential oil obtained from the leaves of *E.bridgesiana* was examined by GC/MS and 30 constituents constituting ca.98 percent of the oil were characterized. The oil was found to be very rich in 1,8-cineole (80 percent), while other constituents were alpha-terpineol (7 percent), limonene (2 percent), p-cymene (2 percent) and globulol (2 percent).

9202-1237 Singh, M.P., Parveen, N., Khan, N.U., Achari, B., Dutta, P.K.(Department of Chemistry, Aligarh Muslim University, Aligarh 202 002, UP, India) **Constituents of Garcinia xanthochymus.** *Fitoterapia*, v. 62(3): p. 286, 1991 (9 ref, Eng).

Straight chain alcohol, friedelin, betulin, beta-sitosterol, canophyllol and dimethyl terephthalate alongwith xanthochymol, maclurin, isoxanthochymol, volkensiflavone, morelloflavone and cambogin were isolated from dried leaves of *G. xanthochymus*.

9202-1238 Singh, S.P., Khanna, K.R., Dixit, B.S., Srivastava, S.N. (National Botanical Research Institute, Lucknow 226001, UP, India) **Fatty acid composition of opium poppy (Papaver somniferum) seed oil.** *Indian Journal of Agricultural Sciences*, v. 60(5): p. 358-359, 1990 (7 ref, Eng).

Fatty acid composition of seed oil varied from 41.4 to 49.1 percent. The linoleic acid content was high in all the samples examined. Significant negative correlations between linoleic acid and oleic acid and between linoleic acid and stearic acid were observed.

9202-1239 Stanic, G., Petricic, J., Blazevic, N.(Faculty of Pharmacy and Biochemistry, University of Zagreb, A. Kovacica 1,4100, Zagreb, Yugoslavia) **Gas chromatographic investigations of essential oils of Satureja montana and Satureja subspicata from Yugoslavia.** *Journal of Essential Oil Research*, v. 3(3): p. 153-158, 1991 (9 ref, Eng).

Essential oils of *S.montana* subsp. *montana* from different locations were analysed. Oil content varied from 0.8 percent to 1.8 percent, the highest oil yield was found in samples collected prior to flowering. Depending upon the location and developing stage of the plant the oils were found to possess significant quantitative differences. The main components found in the oils were carvacrol (4.8-61.1 percent), thymol (1.0-61.0 percent), p-cymene, gamma-cymene, gamma-terpinene, beta-caryophyllene, bornyl acetate and borneol.

9202-1240 Suarez, M., Duque, C.*(Departamento de Quimica, Universidad Nacional de Colombia, Apartado Aereo 14490, Bogota, Colombia) **Volatile constituents of lulo (Solanum vestissimum D.) fruit.** *Journal of Agricultural and Food Chemistry*, v. 39(8): p. 1498-1500, 1991 (8 ref, Eng).

The volatiles of fresh lulo (*S.vestissimum)* were separated from the fruit pulp by steam distillation and simultaneous solvent extraction (pentane-diethyl ether 1:1). The concentrated extract was subjected to prefractionation on silica gel column chromatography by a discontinuous pentane-diethyl ether gradient.Subsequently, the volatiles were analyzed by capillary gas chromatography and combined gas chromatography-mass spectrometry. A total of 65 volatiles could be identified for the first time as constituents of the lulo fruit pulp. Among them, methyl propionate, methyl butanoate, butylacetate, methyl(E)-2-butenoate, 3-methylbutyl acetate, methyl hexanoate, methyl(E)-2-methyl-2-butenoate, (Z)-3-hexenyl acetate, methyl benzoate, (Z)-3-hexenol, linalool, alpha-terpineol, and geraniol were found as major components.

9202-1241 Subarnas, A., Oshima, Y., Hikino, H.(Pharmaceutical Institute, Tohoku University, Aoba-yama, Sendai, Japan) **New constituents of Astragalus mongholicus.** *Planta Medica*, v. 57(6): p. 590, 1991 (10 ref, Eng).

The roots of *A.mongholicus* collected in China, afforded beta-hydroxy-2-methylpyridine (10 mg), (-)-coriolic acid (10 mg), (+)-lariciresinol (8 mg), (-)-syringaresinol (10 mg), and lupenone (7 mg). Identification of the isolated constituents was done on the basis of their m.p., UV, IR, 1H-NMR, 13C-NMR, and mass spectral data, and direct comparison with the authentic samples.

9202-1242 Suri, A., Bhargava, S., Singh, P.(Department of Chemistry, University of Rajasthan, Jaipur 302004, Rajas-

than, India) **Acetylenic derivatives from Moscharia pinnatifida.** *Journal of the Indian Chemical Society*, v. 68(6): p. 371-372, 1991 (5 ref, Eng).

Isolation and identification of three acetylenic spiroketals from the aerial parts of *M.pinnatifida* has been reported..

9202-1243 Swain, I.A., Quirke, J.M.E., Winkle, S.A., Downum, K.R.* (Department of Biological Sciences, University Park, Florida International University, Miami, FL 33199, USA) **Furanocoumarin from Dorstenia contrajerva.** *Phytochemistry*, v. 30(12): p. 4196-4197, 1991 (9 ref, Eng).

A new furanocoumarin, 5-{3,4-epoxy-2,7-dimethyl-6,7-octenoyl} psoralen was isolated and identified from *D.contrajerva* leaves.

9202-1244 Takayanagi, H., Ogura, H.*, Konda, Y., Urano, M., Harigaya, Y., Li, X. , Lou, H., Onda, M.(School of Pharmaceutical Sciences, Kitasato University, Minato-ku, Tokyo 108, Japan) **The crystal and molecular structures of hancokinol and hancolupenone from Cynanchum hancokianum (Maxim.)Al. Iljinski. (Asclepiadaceae).** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1234-1237 , 1991 (3 ref, Eng).

The crystal and molecular structures of hancokinol and hancolupenone from *C.hancokianum* have been determined by X-ray analysis. In the case of hancokinol, among four molecules related on a 4-fold rotation axis, hydrogen bondings between the hydroxyl groups of neighboring molecules are observed.

9202-1245 Tan, P., Hou, C.Y., Liu, Y.L. , Lin, L.J., Cordell, G.A.*(Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy, University of Illinois at Chicago, Illinois 60612, USA) **Swertipunicoside. The first bisxanthone C-glycoside.** *Journal of Organic Chemistry*, v. 56(25): p. 7130-7133 , 1991 (25 ref, Eng).

Swertipunicoside (yield 0.0009 percent) has been isolated from the whole plant of *S.punicea* and its structure elucidated as 1,5,8-trihydroxy-3-methoxy-7-(1',3',6',7'-tetrahydroxy-9'-oxo-4'-xanth yl) xanthone 2'-C-beta-D-glucopyranoside.

9202-1246 Tanaka, R., Matsunaga, S.*(Oska University of Pharmaceutical Sciences, 2-10-65 Kawai, Matsubara, Osaka 580, Japan) **9beta-Lanostane-type triterpene lactones from the stem bark of Abies veitchii.** *Journal of Natural Products*, v. 54(5): p. 1337-1344 , 1991 (14 ref, Eng).

Two new tetracyclic triterpene lactones and two known compounds, 3-oxo-9beta-lanosta-7,24-dien-26,23R-olide and 3beta-hydroxy-9beta-lanosta-7, 24-dien-26,23R-olide have been isolated from the stem bark of *A.veitchii*. Structures of new compounds have been established as 3alpha-hydroxy-9beta-lanosta-7, 24-dien-26,23R-olide and 3alpha-methoxylanosta-7,9(11),24-trien-26,23R-olide.

9202-1247 Tanaka, R., Matsunaga, S.*(Osaka University of Pharmaceutical Sciences, 2-10-65 Kawai, Matsubara, Osaka 580, Japan) **Fernane and multiflorane triterpene ketols from Euphorbia supina.** *Phytochemistry*, v. 30(12): p. 4093-4097, 1991 (8 ref, Eng).

Two new triterpene ketols were isolated from the whole herb of *E.supina*, one of these compounds, named supinenolone E, was confirmed to be 3beta-hydroxy-D:C-friedo-B':A'-neogammacer-8-en-7-one (3beta-hydroxyfern-8-en-7-one) and the another to be 3beta-hydroxy-D-: C-friedo-olean-8-en-7-one (3beta-hydroxymultuiflor-8-en-7-one) on the basis of chemical and spectral evidence.

9202-1248 Tanaka, Y., Sanada, S.(Research Institute, Daiichi Pharmaceutical Co., Ltd., 16-13, Kitakasai 1-chome, Edogawa-ku, Tokyo 134, Japan) **Studies on the constituets of Ziziphus jujuba Miller.** *Shoyakugaku Zasshi*, v. 45(2): p. 148-152, 1991 (8 ref, Jap, Eng).

From a water extract of the seeds of *Z.jujuba* a Chinese traditional medicine, the following compounds were isolated and identified: spinosin, swertisin, 6'''-feruloylspinosin, 6'''-sinapoylspinosin, 6'''-p-coumaloyl-spinosin, 2''-O-glucosylisoswertisin, vicenin-2, and a new flavonoid, apigenin 6-C-{(6-O-p-hydroxybenzoyl) beta-D-glucopyranosyl(1 to 2)} beta-D-glucopyranoside.

9202-1249 Tezuka, Y., Hirano, H., Kikuchi, T.*, Xu, G.(Research Institute for Wakan-Yaku (Oriental Medicines), Toyama Medical and Pharmaceutical University, 2630 Sugitani, Toyama 930-01, Japan) **Constituents of Ephemerantha lonchophylla; isolation and structure elucidation of new phenolic compounds, ephemeranthol-A, ephemeranthol-B, and ephemeranthoquinone, and of a new diterpene glucoside, ephemeranthoside.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 593-598, 1991 (18 ref, Eng).

Constituents of *Ephemerantha lonchopylla* which is used as a source plant of the Chinese crude drug "Shi-Hu", were examined and four new phenolic compounds, 3-O-methylgigantol, ephemeranthoquinone(3), ephemeranthol-A, and ephemeranthol-B, and a new diterpene glucoside named ephemeranthoside were isolated along

with four known compounds, denbinobin, 4,7-dihydroxy-2,3-dimethoxyphenanthrene, erianthridin, and gigantol. The structures of the new compounds were determined on the basis of spectroscopic data.

9202-1250 Tinto, W.F., Blyden, G., Reynolds, W.F., McLean, S.* (Department of Chemistry, University of Toronto, Toronto M5S 1A1, Canada) **Constituents of Hyeronima alchorneoides.** *Journal of Natural Products*, v. 54(5): p. 1309-1313 , 1991 (5 ref, Eng).

The structures of hyeronimone (C19H31NO3, mp 85-86 degree C), and its acetate (C21H33N04, mp 77-77 degree C) isolated from the roots of *H.alchoneoides*, have been established, mainly on the basis of 2D NMR spectroscopy. Aquiligeolide, a rare butenolide, was isolated from the leaves of the plant, which also afforded lupeol, stigmasterol, and a sitosterol.

9202-1251 Tojo, E.(Departamento de Quimica Organica de la Facultad de Quimica y Seccion de Alcaloides del CSIC, Santiago de Compostela, Spain) **(+)-Narcidine, a new alkaloid from Narcissus pseudonarcissus.** *Journal of Natural Products*, v. 54(5): p. 1387-1388 , 1991 (8 ref, Eng).

A new crinine-type alkaloid, (+)-narcidine (C17H21NO4), has been isolated from the bulbs of *N.pseudonarcissus* and its structure elucidated. (+)-Haemanthamine, (+)-hippeastrine, (-)-galanthamine, (+)-homolycorine, (-)-narcissidine, (+)-8-0-demethylhomolycorine and (+)-narcidine have also been isolated and identified.

9202-1252 Tripathi, A.K., Gupta, K.R.(Department of Chemistry, Governament Model Science College, Bilaspur 495001, MP, India) **Phytochemical study of Cassia siamea.** *Journal of the Indian Chemical Society*, v. 68(4): p. 254-255, 1991 (12 ref, Eng).

C.siamea roots, yielded a rutinoside 1-hydroxy-6,8-dimethoxy-2-methyl anthraquinone, mp 122 degree C.

9202-1253 Tsitsa-Tzardi, E., Loukis, A.(Laboratory of Pharmacognosy, University of Athens, Hippocratous 20, 106 79 Athens, Greece) **Constituents of Sorbus torminalis fruits.** *Fitoterapia*, v. 62(3): p. 282-283, 1991 (2 ref, Eng).

From *S.torminalis* fruits, cholesterol, campesterol, stigmasterol, sitosterol, myristic acid, palmitic acid, palmitoleic acid, stearic acid, oleic acid, linoleic and linolenic acids were isolated.

9202-1254 Tu, Y.Q., Chen, Y.Z.(Department of Chemistry, Lanzhou University, Gansu Province People's Republic of China) **Sesquiterpene polyol esters from Celastrus rosthornianus.** *Phytochemistry*, v. 30(12): p. 4169-4171, 1991 (10 ref, Eng).

Two new sesquiterpene polyol esters with beta-dihydroagarofuran skeleton were isolated from the root bark of *C.rosthornianus*. Their structures were elucidated, maily on the basis of spectral analyses, as 1beta-acetoxy-8beta,9alpha-dibenzoyloxy-6alpha-hydroxy-2beta(alpha -met hylbutanoyloxy)-beta-dihydro-agarofuran and 1beta-acetoxy-9alpha-benzoyloxy-8beta(beta-furancarbonyloxy)-6alpha-hy droxy-2beta(alpha-methylbutanoyloxy)-beta-dihydroagarofuran. The complete assignments of 13C NMR chemical shifts for both compounds on the basis of 1H-13C chemical-shift correlation spectrum were also carried out.

9202-1255 Tu, Y.Q., Wu, T.X., Li, Z.Z., , Zhen, T., Chen, Y.Z. (National Laboratory of Application Organic Chemistry, Department of Chemistry, Lanzhou University, Lanzhou, Gansu Province, People's Republic of China) **Sesquiterpene polyol esters from Celastrus paniculatus.** *Journal of Natural Products*, v. 54(5): p. 1383-1386 , 1991 (13 ref, Eng).

From the MeOH extract of the seed oil of *C.paniculatus*, a known sesquiterpene, 1beta,6alpha,8beta-triacetoxy-9alpha-(beta-furancarbonyloxy)-beta-dihy droagarofuran and a new sesquiterpene, 1beta,6alpha-diacetoxy-9beta-benzoyloxy-8beta-cinnamoyloxy-beta-d ihydr oagarofuran, have been isolated and characterized.

9202-1256 Tucker, A.O., Maciarello, M.J. , Adams, R.P., Landrum, L.R., Zanoni, T.A.(Department of Agriculture and Natural Resources, Delaware State College, Dover, DE 19901-2275) **Volatile leaf oils of Caribbean Myrtaceae. 1. Three varieties of Pimenta racemosa (Miller) J. Moore of the Dominican Republic and the commercial bay oil.** *Journal of Essential Oil Research*, v. 3(5): p. 323-329 , 1991 (11 ref, Eng).

The foliar essential oils of *P.racemosa* var. *grisea* are dominated by geranil (0-85.52 percent), methyl eugenol (0.30-92.60 percent), and/ortrans-methyl isoeugenol (0-86.32 percent). The foliar essential oils of *P.racemosa* var. *hispaniolensis* are dominated by 1,8-cineole (0.05-37.96 percent), methyl chavicol (0-22.61 percent), methyl eugenol (0-63.88 percent), gamma-terpinene (0-16.67 percent), terpinen-4-ol (0.08-28.98 percent), and/or thymol (0-44.02 percent). The foliar essential oils of *P.racemosa* var *ozua* Landrum are dominated by 1,8-cineole (47.24-55.93 percent), limonene (3.62-30.07 percent), and/or alpha-terpineol (6.68-15.12 percent). The commercial bay oil *P.racemosa* var racemosa is dominated by chavicol (less than 0.01-15.51 percent), eugenol (44.41-68.93 percent, methyl eugenol (0-11.88 percent), and/or myrcene (0.10-16.17 percent).

9202-1257 Tucker, A.O., Maciarello, M.J. , Landrum, L.R. (Department of Agriculture and National Resources Delware State College, Dover, DE 19901-2275) **Volatile leaf oils of Carribbean Myrtaceae. II. Pimenta dioica (L.) Merr. of Jamaica.West Indies.** *Journal of Essential Oil Research*, v. 3(3): p. 195-196 , 1991 (6 ref, Eng).

Two oils are produced by steam distillation of the leaves of *P.dioica* of Jamaican origin were examined by GC/MS and found to be rich in eugenol (66.38-79.24 percent.

9202-1258 Tucker, A.O., Maciarello, M.J. , Adams, R.P., Landrum, L.R., Zanoni, T.A.(Department of Agriculture and Natural Resources, Delaware State College, Dover, DE 19901-2275, USA) **Volatile leaf oils of caribbean myrtaceae. III. Pimenta haitiensis (Urban) Landrum of the dominican republic.** *Journal of Essential Oil Research*, v. 3(6): p. 471-473 , 1991 (2 ref, Eng).

The foliar oils of *P.haitiensis* of the Dominican Republic, which were analyzed by GC/MS, were found to contain 1,8-cineole (11.35-33.14 percent), methylchavicol (11.65-41.10 percent), linalool (15.97-17.81 percent), and/or methyl eugenol (0-24.39 percent) as major constituents.

9202-1259 Tumen, G.(Uludag University, Faculty of Education, Department of Biology, 10,100 Balikesir, Turkey) **The volatile constituents of Acinos-suaveolens (Sibt. et. Smith) G.Don.Fil. growing in Turkey.** *Journal of Essential Oil Research*, v. 3(3): p. 191-194 , 1991 (3 ref, Eng).

Analysis of the volatile constituents of *A.suaveolens* of Turkish origin was achieved by a combination of GC and GC/MS. Twenty-eight components were identified, of which isomenthone (50.86 percent) and pulegone (33.22 percent) were the most abundant.

9202-1260 Ulubelen, A., Topcu, G., Chen, S. , Cai, P., Synder, J.K.(Faculty of Pharmacy, University of Istanbul, Beyazit, Istanbul, Turkey) **New abietane diterpene from Salvia wiedemannii Boiss.** *Journal of Organic Chemistry*, v. 56(26): p. 7354-7356 , 1991 (13 ref, Eng).

A new diterpene (C20H26O3) has been isolated from the aerial parts of *S.wiedemannii* and its structure elucidated with the help of spectroscopic techniques.

9202-1261 Ulubelen, A.*, Kurucu, S.(Faculty of Pharmacy, University of Istanbul, Istanbul, Turkey) **Sesquiterpene acids from Echinops ritro.** *Fitoterapia*, v. 62(3): p. 280, 1991 (10 ref, Eng).

In addition to the alkaloids echinopsine, echinopsidine, echinoramine I, and echinorine, the triterpenoids alpha-amyrin, alpha-amyrin acetate, beta-sitosterol, sitosteryl 3-beta-glucoside, two sesquiterpene acids, ilicic and costic acid were isolated from *E.ritro.*

9202-1262 Ulubelen, A.*, Doganca, S.(Faculty of Pharmacy, University of Istanbul, Istanbul, Turkey) **Constituents of the aerial parts of Ruta montana.** *Fitoterapia*, v. 62(3): p. 279, 1991 (7 ref, Eng).

Chalepensin, xanthatoxin, bergapten, daphnoretin, methylether, 4-methoxyquinaldine, scopoletin and 3-hydroxyquinoline alongwith previously isolated rutamarin, sesamin, daphnoretin, bergaptol, dictaminine and monrutanine were isolated from the aerial parts of *R.montana.*

9202-1263 Uniyal, G.C., Agrawal, P.K., Sati, O.P., Thakur, R.S.* (Central Institute of Medicinal and Aromatic Plants, Lucknow 226 016, UP, India) **Spirostane hexaglycoside from Agave cantala fruits.** *Phytochemistry*, v. 30(12): p. 4187-4189, 1991 (8 ref, Eng).

A new steroidal glycoside, agaveside D, isolated from the fruits of *A.cantala* was characterized as 3beta-alpha-L-rhamnopyranosyl-(1 to 2), beta-D-glycopyranosyl-(1 to 3)-beta-D-glucopyranosyl{beta-D-xylopyransoyl-(1 to 4)-alpha-L-rhamnopyranosyl-(1 to 2)}-beta-D-gluycopyranosyl}-25R-5alpha-spirostane on the basis of chemical degradation and spectrometry.

9202-1264 Urzua, A., Cuadra, P., Rodriguez, R., Mendoza, L. (Universidad de Santiago de Chike, Facultad de Ciencia, Departamento de Quimica, Casilla 5659, Santiago 2, Chile) **Flavonoid aglycones in the resinous exudate of some Chilean plants.** *Fitoterapia*, v. 62(4): p. 358, 1991 (11 ref, Eng).

In addition to previously isolated constituents, *Senecio adenotrichins* yielded kaempferol-3-7-dimethylether; *Haplopappus velutinus* gave kaempferol-3-methyl-ether, kaempferol-3,7-dimethylether; *Conyza* spp gave 8,3'- dimethoxy-5 ,7,4'-trihydroxyflavone; *Escallonia leucantha* yielded galangine 3,7-dimethylether; while *E.pulverulenta* yielded apigenin-7,4-dimethylether, acacin and genkwanin.

9202-1265 Verotta, L.*, Lolla, E., Moggi, A.(Dipartmento di Chimica Organica e Industriale, Universita degli Studi di Milano, via G. Vienezian 21, 20133 Milan, Italy) **Improvement in the separation of two Ginkgo biloba coumaroyl flavonoids.** *Fitoterapia*, v. 62(4): p. 339-341, 1991 (8 ref, Eng).

Two bioactive flavonoidal coumaroyl glycosides from *G.biloba* were isolated by gel filtration and DCC chromatography.

9202-1266 Vilegas, J.H.Y., Gottlieb, O.R. , Gottlieb, H.E. (Instituto de Quimica, Universidade de Sao Paulo, 05508, Sao Paulo, SP, Brazil) **Cinnamoylglucose from Gomortega keule.** *Phytochemistry*, v. 30(12): p. 4200-4201, 1991 (6 ref, Eng).

Examination of bark and trunk wood of *G.keule* resulted in the isolation of 1,3,6-tri-O-p-methoxycinnamoyl-beta-D-glucose.

9202-1267 Villasenor, I.M., Dayrit, F. , Lim-Sylianco, C.Y. (Institute of Chemistry, University of the Philippines, Diliman, QC, Philippines) **Studies on Moringa oleifera seeds, II. Thermal degradation of roasted seeds.** *Philippine Journal of Science*, v. 119(1): p. 33-39 , 1990 (9 ref, Eng).

Thermal degradation products of roasted seeds of *M.oleifera* were compared to the non-roasted seeds. HPLC analysis showed that 4{alpha-L-rhamnosyloxy} phylacetonitrile is a thermal degradation product. It is produced from the parent 4{alpha-L-rhamnosyloxy} benzyl glucosinolate during roasting. It is not produced from the pyrolysis of 4{alpha-L-rhamnosyloxy} benzyl isothiocyanate.

9202-1268 Wakabayashi, N., Spencer, S.L. , Waters, R.M., Lusby, W.R.(Insect Chemical Ecology Laboratory, Agricultural Research Centre, Beltsville, Maryland 20705, USA) **A polyacetylene from Honduras mahogany, Swietenia mahagoni.** *Journal of Natural Products*, v. 54(5): p. 1419-1421 , 1991 (12 ref, Eng).

A new C17 epoxydiol polyacetylene, alpha-hexyl-3-(6-hydroxy-2,4-octadiynyl) oxiranemethanol, has been isolated from *S.mahagoni* wood. Occurrence of a polyacetylene in the family Meliaceae is unusual.

9202-1269 Wang M, Qin H, Kong M , Li Y(Henan Institute of Chemistry, Zhengzhou, 450003, PR China) **Insecticidal sesquiterpene polyol ester from Celastrus angulatus.** *Phytochemistry*, v. 30(12): p. 3931-3933, 1991 (4 ref, Eng).

An insecticidal sesquiterpene polyol ester, angullatin A, was isolated from the root bark of *C.angulatus*. Its structure was established as 1alpha,2alpha-diacetoxy-8beta,15-diisobutyryloxy-9alpha-benzoyloxy-4beta,6beta-dihydroxydihydro-beta-agarofuran by spectroscopic methods.

9202-1270 Wang, C.L., Zhang, R.Y.*, Han, Y.S. , Dong, X.G., Liu, W.B.(Phytochemistry Department of Beijing Medical University, Beijing 100 083, China) **Chemical studies of coumarins from Glycyrrhiza uralensis Fiscii.** *Acta Pharmaceutica Sinica*, v. 26(2): p. 147-151 , 1991 (9 ref, Chi, Eng).

The isolation and identification of eight crystalline substances from the root of *G.uralensis* has been reported. Besides the known compounds liquiritin, hexacosane, beta-sitosterol, licoricone liquiritigenin, a new constituent, named neoglycyrol was obtained by sillica gel and polyamide column chromatographic method. Its chemical structure was elucidated by means of chemical and sepctrometric analysis (UV,IR,NMR and MS). Neoglycyrol, C21H18O6, mp 263.5 to 265 degree C) possesses one methoxyl, one isopentenyl and two hydroxyls. its diacetate derivative is C25H22O8 with mp 202 to 203.5 degree C and its dimethyl ether derivative is C23H22O6 with mp 207 to 208 degree C.

9202-1271 Wartgen, K., Wichtl, M.*(Institut fur Pharmazeutische Biologie der Philipps-Universitat, Deutschhausstrasse 17/1/2, D-3550 Marburg, Federal Republic of Germany) **Tricyclooxyisohumulone: A new autoxidation product of humulone.** *Planta Medica*, v. 57(5): p. 498-499, 1991 (7 ref, Ger).

Only title translated.

9202-1272 Wiedenfeld, H., Roder, E.(Pharmazeutisches Institute der Universitat, An der Immenburg 4, D-5300 Bonn-Endenich, FRG) **Pyrrolizidine alkaloids from Ageratum conyzoides.** *Planta Medica*, v. 57(6): p. 578-579, 1991 (8 ref, Eng).

From the herb *A.conyzoides* two pyrrolizidine alkaloids (PAs) (I) and (2) were isolated by preparative TLC. On the basis of MS, H-NMR, C-NMR data their structures were elucidated as O9-retronecine-(-)-viridifloric ester (1), named as lycopsamine and O9-heliotridine-(-)-viridifloric ester (2), named as echinatine..

9202-1273 Wollenweber, E.(Institut fur Botanik der Technischen Hochschule, Schnittspahnstrasse 3, D-6100 Darstadt, Germany) **External leaf flavonoids of Centaurea macrocephala.** *Fitoterapia*, v. 62(4): p. 364-365, 1991 (6 ref, Eng).

Alongwith previously isolated constituents, small amounts of apigenin, apigenin-4'-methyl ether, scutellarein-6,7-dimethyl ether, scutellarein-6,7,4'-trimethyl ether, luteolin, luteolin-3'-methyl ether and the 6-/6,7-/6,3'/6,7,3'- and 6,7,3',4-methyl derivatives of 6-hydroxyluteolin were isolated.

9202-1274 Wollenweber, E., Mayer, K.(Institut fur Botanik der Technischen Hochschule, Schnittspahnstrasse 3, D-6100 Darmstadt, Germany) **Exudate flavonoids of Anthemis nobilis and A.tinctoria.** *Fitoterapia*, v. 62(4): p. 365-366, 1991 (3 ref, Eng).

Scutellarein-6-methyl ether, scutellarein-6,4'-dimethyl ether and 6-methoxy-luteolin were isolated from *A.nobilis* flower heads. Aerial parts of *A.tinctoria* yielded 6-hydroxykaempferol-3,6,4'-trimethyl ether, quercetagetin-3,6,4'-trimethyl ether and scutellar-6,4'-dimethyl ether as major flavonoids and apigenin-4'-methyl ether, scutellarein-6-methyl ether, quercetagetin-3,6-dimethyl ether, quercetin-3,3'-dimethyl ether and kaempferol-3,4'-dimethyl ether as minor constituents.

9202-1275 Wollenweber, E., Arriaga-Giner, F.J.(Institut fur Botanik der Technischen Hochschule, Darmstadt, Germany) **Fruit surface wax of Mastichodendron capiri.** *Fitoterapia*, v. 62(4): p. 361-362, 1991 (2 ref, Eng).

The crystalline material obtained from waxy coating of *M.capiri* fruits was found to be a mixture of ursolic acid and oleanolic acid.

9202-1276 Worner, M., Pflaum, M., Schreier, P.(Lehrstuhl fur Lebensmittelchemie, University Wurzburg, Am Hubland, D8700 Wurzburg, FRG) **Additional volatile constituents of Artemisia vulgaris L. herb.** *Flavour and Fragrance Journal*, v. 6(4): p. 257-260 , 1991 (24 ref, Eng).

The extract obtained by solid liquid extraction with pentane-dichloromethane (2+1, v/v) from dry mugwort *(A.vulgaris)* herb was fractionated by means of gel permeation chromatography (GPC) and subsequent middle-pressure liquid chromatography (MPLC). Capillary gas chromatography (HRGC) and combined HRGC techniques, revealed the occurrence of 54 additional volatiles not described as yet in *A.vulgaris* herb. Among them, chiral evaluation of gamma-nonalactone carried out by on-line coupled multidimensional gas chromatography-mass spectrometry (MDGC-MS) revealed a distribution of (R):(S)=34:66 percent.

9202-1277 Wu, Q.F., Wei, J.J., Xu, J.D.(Norman Bethune University of Medical Sciences, Chang Chun 130021, China) **Purification and identification of red ginseng polypeptides.** *Acta Pharmaceutica Sinica*, v. 26(7): p. 499-504, 1991 (7 ref, Chi, Eng).

Two new polypeptides named RGP I and RGP II were isolated from the Chinese drug red ginseng for the first time. They were identified as propadecopeptide and pentadecopeptidex on the basis of analysis of amino acid composition and determination of molecular weight. Further-more, the effects of RGPs on the content of polysaccharides and the activity of succinodehydrogenase in the 2BS cells of the lung of human embryo were studied.

9202-1278 Wysocka, W., Brukwicki, T.(Faculty of Chemistry, Adam Mickiewicz University, 60-780 Poznan, Poland) **Minor alkaloids of Lupinus albus: 13alpha-hydroxymultiflorine and 13alpha-hydroxy-5-dehydromultiflorine.** *Planta Medica*, v. 57(6): p. 579-580, 1991 (11 ref, Eng).

From the seeds of a new cultivar of *L.albus*, two previously little known alkaloids were isolated: 13alpha-hydroxymultiflorine and 13alpha-hydroxy-5-dehydromultiflorine. Their structures were determined by means of IR, UV, MS and H-NMR and C-NMR data.

9202-1279 Xia-duo Ji, Quau-long Pu, H. , Garraffo, M., Pannell, L.K.(Guangxi institute of Traditional Medical and Pharmaceutical Sciences, 20 Gu Cheng Road, Nanning, Guangxi, Peoples Republic of China) **The essential oil of the leaves of Psidium guajava L.**. *Journal of Essential Oil Research*, v. 3(3): p. 187-189 , 1991 (8 ref, Eng).

A characterisation of the compounds present in the essential oil from the leaves of *P.guajava* has been obtained. alpha-pinene (37.8 percent) and 1,8-cineole (18.9 percent) are the major compounds.

9202-1280 Xiao-duo Ji, Pu, Q.L., Garraffo, H.M., Pannell, L.K. (Guangxi Institute of Traditional Medical and Pharmaceutical Sciences, 20 Gu Cheng Road, Nanning, Guangxi, Peoples Republic of China) **The essential oil of the leaves of Callistemon rigidus R.Br.** *Journal of Essential Oil Research*, v. 3(6): p. 465-466 , 1991 (1 ref, Eng).

The essential oil from the leaves of *C.rigidus*, a traditional Chinese medicinal plant, has been analyzed and found to contain thirteen compounds. The oil was predominantly 1,8-cineole (89.9 percent).

9202-1281 Xu, G.S., Zhao, W., Wu, D. , Yu, D.Q., He, C.H.*, Yang, J.J.* , Sun, F.((Xinjiang Institute of Materia Medica, Urumuqi, 830002, Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China)) **The structure and absolute configuration of isorupestonic acid from Artemisia rupestris L.**. *Acta Pharmaceutica Sinica*, v. 26(7): p. 505-509, 1991 (5 ref, Chi, Eng).

A new sesquiterpene compound, isorupestonic acid was isolated from *A.rupestris* and its absolute stereostructure was elucidated by spectral and X-ray crystallographic methods. The biogenesis of isorupestonic acid most likely involves breaking the C4-C5 bond of rupestonic skeleton and forming the C5-C14 bond. The absolute configuration of rupestonic acid was also determined as 4C by X-ray analysis and CD data.

9202-1282 Xu, Y.M., Tanaka, T., Nonaka, G.* , Nishioka, I.(Faculty of Pharmaceutical Sciences, Kyushu University 62, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812, Japan) **Tan-**

nins and related compounds, CVII. Structure elucidation of three new monomeric and dimeric ellagitannins, flosin B, and reginins C and D, isolated from Lagerstroemia flos-reginae Retz. *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 647-650, 1991 (5 ref, Eng).

Further chemical work on tannins in the leaves of *L.flos-reginae* has resulted in the isolation of new monomeric (flosin B) and dimeric ellagitannins (reginins C and D), together with pterocarinin A and 5-desgalloylpterocarinin A. On the basis of chemical and spectroscopic evidence, the structure of flosin B was determined to be a C-glycosidic ellagitannin possessing a valoneic acid dilactonyl group, while reginins C and D were characterized as dimeric ellagitannins (6 and 10, respectively), in which a pedunculagin carbon-to-oxygen bond.

9202-1283 Yadav, R.N., Saini, V.K.(Department of Chemistry, University of Saugar, Sagar 470003, MP, India) **GLC analysis; the percentage composition of volatile constituents of Anisomeles indica (Linn.) Ktze. leaves.** *Indian Perfumer*, v. 35(2): p. 119-121, 1991 (6 ref, Eng).

The percentage composition of essential oil (0.7 percent) obtained from the leaves of *A.indica* has been analysed by gas liquid chromatography. The oil has been found to consist of alpha-pinene 7.0 percent, beta-pinene 28.0 percent, d-limonene 3.0 percent, methyl-chavicol 19.2 percent, d-alpha-thujene 3.5 percent, citral 9.5 percent, borneol 2.13 percent, 1-8 cineole 11.9 percent, unidentified 1.9 percent, unidentified 2.5 percent, nerol 2.2 percent, alpha-terpineol 2.2 percent, eugenol 24.5 percent, unidentified 1.3 percnet, azulene 6.0 percent, and caryophyllene 15.2 percent.

9202-1284 Yadava, R.N., Saini, V.K.(Department of Chemistry, University of Sagar, Sagar 470003, MP, India) **Gas chromatographic examination of leaf oil of Majorana hortensis Monech.** *Indian Perfumer*, v. 35(2): p. 102-103, 1991 (2 ref, Eng).

Physico-chemical properties of the essential oil (0.5 percent) obtained by steam distillation of the leaves, have been presented. The major components of oil were carvacrol (36.70 percent), eugenol (26.00 percent) and p-cymene (14.00 percent). The other components identified were pinenes, dimonene, camphene, bornyl acetate, ocimene, thujone, 1,8-cineole, myrecene, terpineol, chavicol, geraniol, azulene, caryophyllene and an unidentified component.

9202-1285 Yamada, H., Sun, X., Matsumoto, T., Ra, K.S.*, Hirano, M., Kiyohara, H.(Oriental Medicine Research Center of Kitasato Institute, Minato-ku, Tokyo 108, Japan) **Purification of anti-ulcer polysaccharides from the roots of Bupleurum falcatum.** *Planta Medica*, v. 57(6): p. 555-559, 1991 (19 ref, Eng).

A water-soluble crude polysaccharide fraction (BR-1) prepared from the root of *B.falcatum* (Japanese name=Saiko) prevented HCl/ethanol induced ulcerogenesis in mice significantly. BR-1 was fractionated into four polysaccharide fractions (BR-2, BR-3, BR-4, and BR-5) and the strongly acidic polysaccharide fraction BR-2 showed the most potent inhibition of gastric lesion formation. When BR-2 was further fractionated, the most potent anti-ulcer activity was observed in the pectin-like polysaccharide, bupleuran 2IIc. Bupleuran 2IIc was composed mainly of galacturonic acid with small proportions of arabinose, rhamnose, and galactose. BR-2 lost most of its activity after treatment with periodate or digestion with endo-polygalacturonase indicating that the polygalacturonan region and/or the molecular mass may contribute to activity.

9202-1286 Yi, J.H., Zhong, C.C., Luo, Z.Y., Xiao, Z.Y.(Sichuan Institute of Chinese Materia Medica, Chongqing, 630 065, China) **Studies on the chemical constituents from the roots of Lamiophlomis rotata (Benth.) Kudo. A medicinal plant in Xi-Zang (Tibet).** *Acta Pharmaceutica Sinica*, v. 26(1): p. 37-41, 1990 (11 ref, Chi, Eng).

Two new highly oxygenated iridoids, named lamiophlomiol A and B, were isolated from an alcohol extract of the roots of *L.rotata* by silica gel G column chromatography. Lamiophlomioi A and B are two epimers. Their structures were elucidated by spectroscopic and chemical analysis.

9202-1287 Yi, Y.H.(School of Pharmacy, Second Military Medical University, 101 Guo He Road, Shanghai 200 433, People's Republic of China) **Triterpenoid and its saponin from Phytolacca esculenta.** *Phytochemistry*, v. 30(12): p. 4179-4181, 1991 (11 ref, Eng).

A new triterpenoid, esculentagenin, and its glycoside, esculentoside M, were isolated from the roots of *P.esculenta* and characterized.

9202-1288 Yoshida, T., Chou, T., Matsuda, M., Yasuhara, T., Yazaki, K., Hatano, T., Nitta, A., Okuda, T.*(Faculty of Pharmaceutical Sciences, Okayama University, Tsushima, Okayama 700, Japan) **Woodfordin D and oenothein A, trimeric hydrolyzable tannins of macro-ring structure with antitumor activity.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1157-1162., 1991 (14 ref, Eng).

Two new antitumor trimeric hydrolyzable tannins, woodfordin D and oenothein A, were isolated from the dried flowers of *Woodfordia fruticosa*, and their macrocyclic

structures, which have a novel constituent unit (woodfordinoyl group) connecting the monomers, have been elucidated on the basis of spectral and chemical evidence. Oenothein A(13) was also isolated from the leaves of *Oenothera biennis*.

9202-1289 Yoshida, T., Yokoyama, K., Namba, O., Okuda, T.*(Faculty of Pharmaceutical Sciences, Okayama University, Tsushima, Okayama 700, Japan) **Tannins and related polyphenols of Euphorbiaceous plants. VII. Tirucallins A, B and Euphorbin F, Monomeric and dimeric ellagitannins from Euphorbia tirucalli L.**. *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1137-1143, 1991 (16 ref, Eng).

A new monomeric hydrolyzable tannin, tirucallin A, and two new dimers, tirucallin B and euphorbin F, have been isolated, together with six known polyphenols including euphorbin A, from the stems of *E.tirucalli*, and their structures were elucidated by spectral and chemical methods. Euphorbin F possesses dehydrohexahydroxydiphenoyl and valoneoyl groups, and tirucallin A has a dilactonized valoneoyl group. The orientation of the valoneyl group of euphorbins A and B was revised.

9202-1290 Yoshikawa, K., Arihara, S., Wang, J.D., Narui, T., Okuyama, O.(Faculty of Pharmaceutical Sciences, Tokushima-Bunri University, Tokushima-Shi, Tokushima 770, Japan) **Structures of two new fibrinolytic saponins from the seed of Luffa cylindrica Roem.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p.1185-1188, 1991 (11 ref, Eng).

Two new fibrinolytic saponins, lucyosides N and P, were isolated from the seeds of *L.cylindrica*. On the basis of chemical and spectral evidence, lucyoside N was characterized as 3-O-beta-D-galactopyranosyl-(1 to 2)-beta-D-glucuronopyranosyl-28-O-beta-D-xylopyranbo syl-(1 to 4)-{beta-D-glucopyranosyl-(1 to 3)}-alpha-L-rhamnopyranosyl-(1 to 2)-alpha-arabinopyranosyl quillaic acid. Lucyoside P was characterized as a gypsogenin glycoside with the same sugar moiety as lucyoside N.

9202-1291 Yu, P.Z., Wang, L.P.*, Chen, Z.N.(Department of Chemistry, Shanghai Second Medical University, Shanghai 200025, People's Republic of China) **New podophyllotoxin-type lignan from Dysosma versipellis var tomentosa.** *Journal of Natural Products*, v. 54(5): p. 1422-1424 , 1991 (18 ref, Eng).

A new 1-aryltetralin lignan, 4'-demethylisopodophyllotoxin (C12H20O8, mp 256.5-258.5 degree C), has been isolated from the roots of *D.versipellis* var *tomentosa* and its structure elucidated. Four known lignans were also isolated and identified. The new lignan has not been encountered before in nature or prepared synthetically.

9202-1292 Zhang, C.Z., Li, C., Feng, S.I. , Shi, J.G.(Department of Pharmacy, Lanzhou Medical College, Lanzhou, Gansu, 730 000, P.R. China) **Iridoid glucosides from Phlomis rotata.** *Phytochemistry*, v. 30(12): p. 4156-4158, 1991 (8 ref, Eng).

Two new iridoid glucosides, dehydropentstemoside and 7-epiphlomiol have been isolated from the aerial parts of *P.rotata* and their structures elucidated by means of chemical and spectral methods. Shanzhiside methyl ester and barlerin have also been isolated and identified.

9202-1293 Zhang, J.S., Chen, Z.L.(Shanghai Institute of Materia Medica, Chinese Academy of Sciences, 319 Yue-Yang Road, Shanghai 200031, People's Republic of China) **Two new 8-oxotetrahydroprotoberberine alkaloids, gusanlung A and B, from Acangelisia gusanlung.** *Planta Medica*, v. 57(5): p. 457-459, 1991 (8 ref, Eng).

Two new 8-oxotetrahydroprotoberberine alkaloids, gusanlung A and B, together with known isoquinoline alkaloids, berberine and jatrorrhizine, were isolated from the Chinese medicinal plant *A.gusanlung*. Their structures were elucidated mainly by spectroscopic analysis.

9202-1294 Zhang, L., Zhang, Z.X., An, D.K. , Kong, C.(China Pharmaceutical University, Nanjing 210009, China) **Studies on the chemical constituents of Tripterygium hypoglaucum (Levl) Hutch.** *Acta Pharmaceutica Sinica*, v. 26(7): p. 515-518, 1991 (4 ref, Chi , Eng).

A new diterpene, named triptonoditerpenic acid (C23H28O4, mp 189-190 degrees C), has been isolated from *T.hypoglaucum*. Its structure was elucidated by UV, IR, MS, 1HNMR, 13CNMR and 2D-NMR spectroscopic analyses.

9202-1295 Zhao, L., Chen, W., Fang, Q.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, People's Republic of China) **Two new oleanane saponins from Anemone flaccida.** *Planta Medica*, v. 57(6): p. 572-574, 1991 (6 ref, Eng).

Two new oleanane saponins, named flaccidoside II and III, were isolated from the rhizome of *A.flaccida*. On the basis of spectroscopic analysis and chemical transformation their structures were elucidated as 3-O-{alpha-L-rhamnopyranosyl-(1 to 2)-beta-D-xylopyranoysl}-oleanolic acid 28-O-{alpha-L-rhamnopyranosyl-(1 to 4)-beta-D-glucopyranosyl-(1 to 6)-beta-D-glucopyranoside} and 3-O-{beta-D-glucopyranosyl-(1 to 2)-beta-D-xylopyranosyl}-oleanolic

acid 28-O-{alpha-L-rhamnopyranosyl-(1 to 4)-beta-D-glucopyranosyl-(1 to 6)-beta-D-glucopyranoside.

9202-1296 Zhao, W., Tezuka, Y., Kikuchi, T. , Chen, J., Guo, Y. (Research Institute for Wakan-Yaku (Oriental Medicines), Toyama Medical and Pharmaceutical University, Sugitani 2630, Toyama 930 01, Japan) **Studies on the constituents of Veratrum plants. II. Constituents of Veratrum nigrum L. var ussuriense. (I). Structure and 1H- and 13C-Nuclear magnetic resonance spectra of a new alkaloid, verussurinine, and related alkaloids.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 549-554 , 1991 (8 ref, Eng).

Alkaloidal constituents of the roots and rhizoma of *V.nigrum* var *ussuriense* , which are used as a source of the Chinese crude drug "Li-lu", were examined and a new alkaloid named verussurinine and six known alkaloids have been isolated. The structure of verussurinine was determined to be 16-O-(2-methylbutyroyl) germine by means of spectroscopic methods, and six other alkaloids were identified as germidine, germerine, 15-O-(2-methylbutyroyl)germine, verazine, jervine, and neogermbudine. Complete assignments of the proton and carbon-13 nuclear magnetic resonance (1H- and 13C-NMR) signals of these alkaloids are also presented.

9202-1297 Zrira, S.S., Benjilali, B.B.(Departement de Chimie-Biochimie-Alimentaires, Institut Agronomique et Veterinaire Hassan II BP 6202, Rabat-Instituts, Morocco) **The essential oil of the leaves and the fruits of Eucalyptus camaldulensis.** *Journal of Essential Oil Research*, v. 3(6): p. 443-444 , 1991 (2 ref, Eng).

The essential oil of the fruits and the leaves of *E.camaldulensis* have been examined by GC/MS. Although the oil yield was higher in the leaves than fruits, the oils were found to be very similar. The major components in the leaf oil and fruit oil were 1,8-cineole (44.62 percent) (49.35 percent), p-cymene (23.30 percent) (19.66 percent), gamma-terpinene (8.12 percent) (4.45 percent) and alpha-pinene (9.55 percent) (3.03 percent) respectively.

Chemotaxonomy

9202-1298 Aitzetmuller, K., Werner, G.(Institute for Chemistry and Physics of Lipids, Federal Center for Cereals, Potato and Lipid Research, Piusallee 76, D-4400 Munster, Germany) **Stearidonic acid (18:4 omega3) in Primula florindae.** *Phytochemistry*, v. 30(12): p. 4011-4013, 1991 (21 ref, Eng).

Stearidonic acid, which is reported to be of rare occurrence in the plant kingdom and which is of considerable dietary and pharmaceutical interest has been found in three closely related *Primula* species. It occurs, together with gamma-linolenic acid (3-4 percent of the seed oil total fatty acids), in significant percentages in *P.florindae*(11 percent), *P.sikkimensis* (14 percent) and *P.alpicola (14 percent). 18:4omega3 may also be of chemotaxonomic interest in the genusPrimula*, as high levels may be typical for section Sikkimensis. The only commercial plant source of stearidonic acid known so far is the seed oil of *Ribes nigrum*.

9202-1299 De Israilev, L.R.A., Del Pero De Martinez, M.A., Seeligmann, P.(Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad nacional de Tucuman, Miguel Lillo 205/51, 4000 S.M. de Tucuman, Argentina) **Myricetin in Tagetes: Chemosystematic significance.** *Phytochemistry*, v. 30(12): p. 4037-4038, 1991 (15 ref, Eng).

Myricetin 3- and 7-glucosides, as well as other flavonoid glycosides were identified in four species of *Tagetes* viz., *T.laxa, T.argentina, T.biflora* and *T.perezi*. The presence of myricetin glucosides in Asteraceae is reported for the first time. Some chemosystematic and evolutionary implications are discussed.

9202-1300 Ekundayo, O., Oderinde, R. , Ogundeyin, M., Stahl-Biskup, E.(Department of Chemistry, University of Ibadan, Ibadan, Nigeria) **Essential oil constituents of Cyperus tuberosus Rottb. rhizomes.** *Flavour and Fragrance Journal*, v. 6(4): p. 261-264 , 1991 (10 ref, Eng).

Hydrodistillation of *C.tuberosus* rhizomes yielded an essential oil (0.65 percent, fresh weight basis). Of the 43 compounds that were identified, humulene, beta-caryophyllene and four of their isomeric epoxides accounted for more than 70 percent of the oil. The other 37 constituents amounted to only 25 percent. The essential oil from *C.rotundus* rhizomes was also analysed and significant compositional differences were found between the two essential oils. These variations may be chemotaxonomically significant.

9202-1301 Hanlidon, E., Kokkini, S. , Bosabalidis, A.M., Bessiere, J.M.(Laboratory of Systematic Botany and Phytogeography, School of Biology, University of Thessaloniki 54006, Thessaloniki, Greece) **Glandular trichomes and essential oil constituents of Calamintha menthifolia (Lamiaceae).** *Plant Systematics and Evolution*, v. 177(1-2): p. 17-26 , 1991 (39 ref, Eng).

The leaves of *C.menthifolia*, collected from two populations grown in NW Greece, showed numerous glandular trichomes of three morphological distinct types. Quantitative and qualitative GC-MS analyses of the essential oils revealed piperitone oxide as the main constituent in both the populations. Relationships between *C.menthifolia*

and other members of the *Satureja* group as well as its taxonomy are discussed. IARI, New Delhi.

9202-1302 Lamarti, A., Badoc, A., Bouriquet, R.(Department of Biology, Faculty of Sciences, Mhanach II, BP 2121 Tetouan, Morocco) **A chemotaxonomic evaluation of Petroselinum crispum (Mill.) A. W. Hill (Parsley) marketed in France.** *Journal of Essential Oil Research*, v. 3(6): p. 425-433 , 1991 (25 ref, Eng).

Pentane extracts of the seeds (fruits) of 44 cultivars of parsley have been examined by gas chromatography. The curly-leaved parsley cultivars can be distinguished by their dark brown light mericarps which possess an essential oil rich in monoterpenes, particularly alpha-pinene (15.7-24.1 percent) and beta-pinene (9.6-15.1 percent). In root parsley, only alpha-pinene (10.6 percent), beta-pinene (7.1 percent), myristicin (2.5 percent) and apiole (79.8 percent) were found, while apiole (30.4-67.5 percent) is the principal constituent of Giant Italian parsley. Myristicin (0.7-62.3 percent) was present in all parsley specimens analyzed.

9202-1303 Mino, Y.(Osaka University of Pharmaceutical Sciences, 2-10-65 Kawai, Matsubara, Osaka 580, Japan) **Metal-containing components in medicinal plants(1) Iron-containing components in Datura leaves.** *Shoyakugaku Zasshi*, v. 45(2): p. 153-158 , 1991 (12 ref, Jap, Eng).

A large portion of the iron in the soluble and anionic protein fraction was found to exist as ferredoxin (Fd), an iron-sulfur protein. The quantity of the iron that exists as Fd corresponds to about 10 to 20 percent of the amounts of the soluble iron and to about 1 percent of the total iron in *Datura* leaves. The electron absorption and resonance Raman spectra of the Fds isolated from each of the four species of the genus *Datura*, *D.metel*, *D.alba*, *D.innoxia*, *D.stramonium* var.*tramonium* and *D.stramonium* var.*tatula* suggested that the structure of the active center of *Datura* Fds is virtually the same as that of spinach Fd, namely, 2Fe-2S type. However, the analytical results of the amino acid compositions of the Fds showed considerable differences between *Datura* Fds and spinach Fd, and a slight difference among diffeent *Datura* Fds. Therefore, the difference in amino acid composition of Fds from taxonomically closely related plants may be used as a reliable indicator for the identification of such plants.

9202-1304 Mizuno, M, Kato, M, Iinuma, M , Tanaka, T, Kimura, A, Ohashi, H , Sakai, H, kajita, T(Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahorahigrashi 5 Chome, Gift 502, Japan) **Further study on two chemical races of Salix sachalinensis Fr. Schmidt.** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 803-804, 1991 (6 ref, Eng).

Chemical constituents in the bark of two chemical races (flavonoid race and phenylopropanoid race) in *S. sachalinensis*, the existance of which had been proposed on the basis of the secondary metabolites in the leaves, were qualitatively and quantitatively compared. The results showed the comparison of secondary metabolites in the leaves between two races is efficient for Salicaceous plants chemotaxonomy.

9202-1305 Mizuno, M., Oka, M., Tanaka, T. , Yamamoto, H., Iinuma, M., Murata, H.(Department of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahorahigashi 5 chome, Gifu 502, Japan) **Comparison of Aristolochia species with chemical constituents.** *Chemical & Pharmaceutical Bulletin*, v. 39(5): p. 1310-1311, 1991 (4 ref, Eng).

Chemical constituents, in particular, aristololactam derivatives of nine *Aristolochia* species (*A.shimadai*, *A.manshuriensis*, *A.cucurbitifolia*, *A.westlandii*, *A.onoei*, *A.kaempferi*, *A.liukiuensis*, *A.debilis* and *A.tagara*) were analyzed by means of HPLC. The aristoloctam derivatives with methoxyl group(s) on the A ring were found abundantly in the subgenus Siphisia, such as *A.shimadai*, *A.manshuriensis* and *A Kaempferi*, and with methylenedioxy group was found in subgenus *Aristolochia* such as *A.deblis* and *A.tagara*. The plants of subgenus Siphisia were richer in aristololactam 1N-beta-D-glucoside and stems of *A.debilis* contained an abundant quantity of aristotolactam derivatures within the methylenedioxy group. The results chemotaxonomically suggest that the aristololactam derivatives are a good specific marker for distinguishing the *Aristolochia* species.

9202-1306 Mwangi, J.W., Addae-Mensah, I. , Munavu, R.M., Lwande, W.(Department of Pharmacy, University of Nairobo, PO Box 19676, Nairobi, Kenya) **Essential oils of two Lippia ukambensis Vatke chemotypes and Lippia somalensis Vatke in Kenya.** *Journal of Essential Oil Research*, v. 3(6): p. 413-417 , 1991 (14 ref, Eng).

The chemical composition of the essential oils of 41 samples of *L.ukambensis* were examined by GC/MS. Two chemotypes were identified on the basis of the camphor and 1,8-cineole. The camphor chemotype of *L.ukambensis* contained camphor (37.3 percent) with only traces of 1,8-cineole, while the other chemotype contained 1,8-cineole (23.7 percent) and only 1.1 percent camphor. Of the twelve components which were present in both chemotypes, only eight were quantitatively significantly different. The major compound in the oil of *L.somalensis* was 1,8-cineole (31.9 percent). By using fifteen components of *L.somalensis* oil, its similarities and differences with those of the two *Lippia* chemotypes were compared.

9202-1307 Nath, S.C., Bordoloi, D.N.(Division of Medicinal & Economic Plants, Regional Research Laboratory, Jorhat 785006, Assam, India) **Major constituents of the essential oil of Clausena haptaphylla W & A leaves.** *Indian Perfumer*, v. 35(2): p. 97-99, 1991 (7 ref, Eng).

Methyl chavicol was identified to be the main component (75.6 percent) followed by anethole (21.7 percent) in the leaf essential oil of *C.heptaphylla* growing in the North Eastern region of India. This result, on comparison with those reported previously for leaf oil of *Clausena* species revealed existence of two chemotypes for *C.heptaphylla* in nature either with methyl chavicol or anethole as major components. Significant variations observed on the occurrence of either of these components in essential oil compositions in the leaves of *Clausena* species were found to be indicative of chemotaxonomic value for interspecific level.

9202-1308 Proenca da Cunha, U., Salgneiro, I.R.(Centro de Estudos Farmaceuticos (INIC), Laboratory of Pharmacognosy, Faculty of Pharmacy, University of Coimbra, 3000 Coimbra, Portugal) **The chemical polymorphism of Thymus zygis ssp. sylvestris from Central Portugal.** *Journal of Essential Oil Research*, v. 3(6): p. 409-412 , 1991 (8 ref, Eng).

The chemical composition of the essential oil of *T.zygis* ssp *sylvestris* was examined chromatographically using Kovats indices and reference compounds as the methods of component identification. A well-marked chemical polymorphosim was detected in these essential oils probably due to genetic factors. Seven pure chemotypes (the linalool, thymol, carvacrol, geraniol/geranyl acetate, 1,8-cineole/linalool, 1,8-cineole/thymol and the alpha-terpinyl acetate) and two mixed chemotypes (the linalool-thymol and the cineole-linalool-thymol) were characterized.

9202-1309 Rashid, M.A., Armstrong, J.A., Gray, A.I., Waterman, P.G.(Phytochemistry Research Laboratories, Department of Pharmacy, University of Strathclyde, Glasgow G1 1XW, Scotland, U K) **Pyranocoumarins as chemotaxonomic markers in Eriostemon coccineus and Philotheca citrina.** *Phytochemistry*, v. 30(12): p. 4033-4035, 1991 (13 ref, Eng).

Examination of the aerial parts of *E.coccineus* and *P.citrina* has shown both to contain the unusual pyranocoumarins avicennol, avicennin and cis-avicennol. Three minor coumarins isolated from *P.citrina* have been identified as avicennol methyl ether, cis-avicennol methyl ether and avicennol ethyl ether. *P.citrina* also yielded another pyranocoumarin, dipetalolactone, and the common lignan sesamin. *E.coccineus*,in addition to coumarins, gave the furoquinoline alkaloids maculosidine and gamma-fagarine and two dihydrocinnanic acid derivatives, eriostoic acid and a new compound with a substitution pattern comparable to cis-avicennin and which has been assigned the trivial name cis-avicennic acid. The co-occurrence of these rare pyranocoumarins supports the contention that *Philotheca* is closely allied to certain taxa currently placed in *Eriostemon* sect. Nigrostipulae.

9202-1310 Umadevi, I., Daniel, M.(Phytochemistry Laboratory, Department of Botany, The MS University of Baroda, Baroda 390 002, Gujarat, India) **Chemosystematics of the Zygophyllaceae.** *Advances in Biosciences*, v. 10(11): p. 69-74, 1991 (17 ref, Eng).

Seven members belonging to six genera of the family Zygophyllaceae have been analysed for their foliar phenolics. The family is rich in flavonols with flavones confined to *Balanites* and *Peganum*. The distinct chemical identity of *Peganum harmala* validates its family status. The specific status of *Tribulus rajasthaniensis* is upheld. NSL, New Delhi.

9202-1311 Zdero, C., Bohlmann, F., Wasshausen, D.C., Mungai, M.G. (Institute for Organic Chemistry, Technical University of Berlin, D-1000 Berlin 12, Germany) **Glaucolides from old world Vernonia species.** *Phytochemistry*, v. 30(12): p. 4025-4028, 1991 (18 ref, Eng).

The investigation of two East African and a Madagascarian *Vernonia* species afforded several new sesquiterpene lactones. *V.colorata* subsp *grandis* gave 19-hydroxyglaucolide A and three vernodalin derivatives. *V.holstii* five new cistifoliolides and *V.zanzibarensis* five lactones closely related to brachycalyxolide. The structures were elucidated by high field NMR techniques. The chemotaxonomic relevance is discussed brifefly.

Ethnomedicine

9202-1312 (National Centre for the People's Traditional Medicine in Nicaragua, Ministry of Health, Nicaragua) **The rescue of the people's traditional medicine in Nicaragua.** *British Journal of Phytotherapy*, v. 1(3/4): p. 47-53 , 1990 (Eng).

In 1985, the Ministry of Health in Los Segonias initiated revival of traditional medicine in Nicaragua, which also includes healing with medicinal plants. A number of publications on Nicaraguan ethnobotany and folk medicine have been listed, which has helped to produce the First National Analytical Catalogue of Medicinal Plants. A number of diseases and plants used in their treatment have been

enumerated. Also discussed is the current situation of traditional medicine in Central America.

9202-1313 Bhattacharyya, A.(Birbal Sahni Institute of Palaeobotany, Lucknow, India) **Ethnobotanical observations in the Ladakh region of northern Jammu and Kashmir state, India.** *Economic Botany*, v. 45(3): p. 305-308, 1991 (11 ref, Eng).

A collection of plants was made from the trans-Himalayan region of Ladakh in the north of J&K at an altitude of 3000 to 5500 m. Local people were contacted for local names and uses. They are used as vegetables, in ceremonial observation, in material culture, personal hygiene, as fodder and as suspected poison.

9202-1314 Dangol, D.R., Gurung, S.B.(Department of Agricultural Botany, Institute of Agriculture and Animal Science, Rampur, Chitwan, Nepal) **Ethnobotany of the Tharu tribe of Chitwan district, Nepal.** *International Journal of Pharmacognosy*, v. 29(3): p. 203-209, 1991 (14 ref, Eng).

A survey of the medicinal plants used by the Tharu tribe of the Chitwan District, Nepal was carried out in four Tharu villages (Meghauli, Bangain, Baghmara and Sauraha) and their adjoining areas in cooperation with tribal medicine men, called "Guruwas". A total of 71 plants were identified to be of medicinal use to the Tharus. The plants were used to treat a range of diseases including headache, diarrhoea, and problems associated with menstruation and pregnancy. Most of the plants were commonly used by all four groups of Tharus.

9202-1315 Khan, S.S., Singh, M.P.*, Chaghtai, S.A.(Department of Botany, Saifia College of Science and Education, Bhopal 462 001, MP, India) **Ethnomedicobotany of Cissus quadrangularis Linn..** *Oriental Journal of Chemistry*, v. 7(3): p. 170-172 , 1991 (8 ref, Eng).

C.quadrangularis is attributed with multifarious medicinal properties. The present paper deals with pharmacological trials carried out by various workers as well as folk-claims of Gond tribals of Raisen district about *C.quadrangularis*.

9202-1316 Siddiqui, M.B.*, Husain, W.(Department of Botany, Aligarh Muslim University, Aligarh Muslim University, Aligarh 202002, UP, India) **Traditional treatment of diarrhoea and dysentery through herbal drugs in rural India.** *Fitoterapia*, v. 62(4): p. 325-329, 1991 (9 ref, Eng).

The paper deals with some important medicinal plants used in diarrhoea and dysentery in rural India. 45 species of 41 genera belonging to 30 families of angiosperms are reported along with doses and mode of administration.

Analytical & Processing Techniques

9202-1317 Buschmann, H.J., Knittel, D. , Schollmeyer, E.* (Deutsches Textilforschungszentrumm Nord-West e.v., Institut an der Universitat-GH-Duisburg, Frankenring 2, D-4150 Krefeld, Germany) **beta-Cyclodextrin as a complexing agent for perfume oils.** *Perfumerie und Kosmetik*, v. 72(9): p. 586-592, 1991 (14 ref, Ger , Eng).

Differential thermograms of perfume oils with non-cyclic dextrins and beta-cyclodextrin have shown the formation of occlusion compounds between the reactants. Head space gas chromatographic analysis of these inclusion compounds indicate that in some cases the volatile components of the perfume oils could not be detected any more.

9202-1318 Chao, R.B., Wu, C.Y.(School of Pharmacy, West China University of Medical Sciences, Chengdu 610041, China) **Study on separation and determination of four tropane alkaloids in crude drugs by micellar HPLC.** *Acta Pharmaceutica Sinica*, v. 26(7): p. 519-526, 1991 (9 ref, Eng, Chi).

A new method for separation and determination of four important tropane alkaloids (hyoscyamine, scopolamine, anisodamine and anisodine) in crude drugs by micellar HPLC was developed. The mobile phase was optimized with the modified simplex method (MSM). The chromatographic response function (CRF) was used as the criterion of optimization and three dimension simplex was used in this course. After eight tests, the given accuracy was achieved. In the optimized system the four tropane alkaloids are separated not only from each other but also from the interfering components in the crude drugs. The CMC of SDS in mobile phase was determined to be 5 mmol L by circle method. The experimental evidences show that the optimized system is micellar chromatography. This method is simple, sensitive and accurate. The extraction solution can be injected directly without the need of a general purification procedure. Several plant materials containing tropane alkaloids were determined.

9202-1319 Duve, K.J., White, P.J.(Food Science and Human Nutrition Department, Iowa State University, Ames, IA 50011, USA) **Extraction and identification of antioxidants in oats.** *Journal of the American Oil Chemists' Society*, v. 68(5): p. 365-370, 1991 (28 ref, Eng).

Eight solvent systems were used with groats and hulls of several lines of oats to determine which system resulted in the most effective, rapid extraction of antioxidants. The greatest activities were obtained with methanolic extracts

derived from oats and hulls. These extracts were added to soybean oil and their activity was compared with bulylated hydroxylotuene (BHT) and tertiary bulyl hydroquinone (TBHQ). The results indicate that oils with added methanolic oat extracts gave higher stability value than the BHT and TBHQ added oils, during 14 days of frying temperature. Phenolic and hydroxy phenolic antioxidant compounds with acids, alcohols, sugaurs or glycerides attached were tentatively identified in the oat and hull extracts.

9202-1320 Elbanowska, A., Napierala, A.(Instytut Roslin i Przetworow Zielarskich, ul. Libelta 27, 61-707 Poznan, Polska) **Method of quantitative determination of anthocyanins in the extracts from fresh stabilized fruits of black chokeberry (Aronia melanocarpa (Michx.) Ellot) and their stability.** *Herba Polonica*, v. 35(4): p. 187-191, 1989 (Recd. 1991, 9 ref, Pol, Eng).

Determination of anthocyanin content in extracts from fruits of black chokeberry has been made using modified Fulcki and Francis' method. It consists in measurement of light absorption (lembda=510nm) for two solutions diluted with buffers (pH 1,0 and 4,5). Modified method is simple, quick and easy to do. Chromatographic analysis of extract from black chokeberry fruits shows the presence of two essential anthocyanins: pelargonidin and cyanidin. It has been found that anthocyanin stability in black chokeberry extracts is low. The content of these compounds after one year storage decreases to 50 percent. Higher stability is obtained by adding citric acid to the extracts. The storage of raw material in frozen form is best for technological purposes.

9202-1321 Hausen, B.M.(Department of Dermatology, University Hospital, Martinistrasse 52, D-2000 Hamburg 20, FRG) **A simple method of isolating parthenolide from Tanacetum and other sensitizing plants.** *Contact Dermatitis*, v. 24(2): p. 153-155, 1991 (21 ref, Eng).

Parthenolide, a strongly-sensitizing sesquiterpene lactone occurs in *T.parthenium, T.vulgare* and other Compositae and some Magnoliaceae species. A simple and rapid method for isolating parthenolide from plant material which relies on the water solubility of the compound. The leaves separated from petals and stems were stirred in water at room temperature for 1 hr. The water was then filtered and extracted twice with chloroform. Other two samples of leaves were separately eluted with ether. The residues on TLC and processing afforded parthenolide.

9202-1322 Hellenas, K.E., Nyman, A., Slanina, P., Loof, L., Gabrielsson, J.(Department of Plant Husbandry, Swedish University of Agricultural Sciences, Box 7043, S-750-07 Uppsala, Sweden) **Determination of potato glycoalkaloids and their aglycone in blood serum by high-performance liquid chromatography. Application to pharmacokinetic studies in humans.** *Journal of Chromatography Biomedical Applications* , v. 573(1): p. 69-78, 1992 (17 ref, Eng).

The development of a high-performance liquid chromatography (HPLC) method for the separation and quantification of potato glycoalkaloids and their aglycone solanidine in blood serum is reported. High selectivity was obtained by using solid-phase extraction followed by off-line dual-column HPLC. Injections were made via a sample enrichment column to achieve maximum sensitivity in the assay. The potato alkaloids in the HPLC effluents were detected by ultraviolet absorption at 200 nm. The detection limits were estimated to be 0.3 ng ml of serum for each of the alkaloids. The method was used to study the pharmacokinetics of potato glycoalkaloids in humans. alpha-Solanine and alpha-chaconine were detected in all blood serum samples collected from seven volunteers 1-25 h after a meal of potatoes. Solanidine was detected in some samples, but there were no traces of the mono-or diglycosides. The average apparent biological half-lives for alpha-solanine and alpha-chaconine were 11 and 19h, respectively. NSL, New Delhi.

9202-1323 Hoyer, G.L., Clawson, D.C. , Brookshier, L.A., Molan, P.E., Marcus, F.I.(Section of Cardiology, Department of Internal Medicine, College of Medicine, University of Arizona, Tucson, AZ 85724, USA) **High-performance liquid chromatographic method for the quantitation of quinidine and selected quinidine metabolites.** *Journal of Chromatography; Biomedical Applications* , v. 572(1&2): p. 59-169, 1991 (32 ref, Eng).

A specific and sensitive assay for the separation and quantitation of quinidine (from the bark of chinchona tree) 3-hydroxyquinidine, quinidine-N-oxide, O-desmethylquinidine and dihydroquinidine is presented. The assay is shown to be sensitive to concentrations of 0.1 microg ml for all the above compounds when using a serum sample of 0.1 ml. The extraction procedure consists of adjusting the serum to an alkaline pH and extracting once with a mixture of methanol-dichloromethane (15:85). The organic extract is dried and the residue is solubilized in mobile phase. The chromatographic conditions are an isocratic delivery of the mobile phase 0.01 M K2HPO4 acetonitrile (96:4) through a C18 column at ambient temperature. Detection of the compounds of interest is by ultraviolet absorption at a wavelength of 210 nm. For each compound the inter-assay variation is less than 10 percent and the intra-assay variation is less than 15 percent. No interfering compounds were detected when a commercially prepared serum spiked with 28 commonly used therapeutic compounds was assayed by this method. NSL, New Delhi.

9202-1324 Ishihara, S.*, Yoshida, S., Tosa, S., Nakazawa, H., Tomimatsu, T.(Tokushima Prefectural Institute for Pharmacy, 3-80, Shinkura-cho, Tokushima 770, Japan) **Study of flavonoid in Citrus (3) Analysis of flavanone glycosides in Kampo prescriptions containing Citrus unshiu peel or/and immature orange by high performance liquid chromatography.** *Shoyakugaku Zasshi*, v. 45(1): p. 52-56, 1991 (6 ref, Jap, Eng).

A HPLC method was applied to the simultaneous determination of four flavanone glycosides in eleven kinds of Kampo prescriptions (KP) containing *C.unshiu* Peel or/and Immature Orange. The commercial products examined were Hochuekki-To, Rikkunsi-To and Daisaiko-To. Pharmaceutical preparations: Nichin-To, Heii-San-Ryou, Rikkunsi-To, Hokikenchu-To, Sinpi-To, Sigyaku-San-Ryou, Shouzyouki-To, Daisaiko-To, Haino-San and Bukuryou-In. The results showed that the glycosides, naringin, narirutin, hesperidin and neohesperidin, might be good marker compounds for the evaluation of the quality of these KP because these flavanone glycoside contents in different prescriptions or products varied considerably. It was also shown that the neohesperidose-flavanone glycosides were to be extracted more easily than the rutinose-flavanone glycosides into the decoction of the KP.

9202-1325 Kak, S.N., Kaul, B.L.*(Regional Research Laboratory, Jammu-Tawi 180001, J&K, India) **Rectification of essential oils by ionizing radiation.** *Parfumerie und Kosmetik*, v. 72(9): p. 576-577, 1991 (8 ref, Eng).

Subjecting *Mentha citrata, M.piperita, Matricaria chamomilla*, citronella, lemongrass, palmarosa, jamrosa, celery, and lavender and *Ocimum* spp essential oils and aroma chemicals to ionizing radiations has resulted in the rectification and changes in olfactory characteristics of the essential oils. These changes have been ascribed to variation in oxygan tension or oxidation reaction of essential oils as a result of irradiation.

9202-1326 Kaul, R., Read, J., Mattiasson, B.(Department of Biotechnology, Chemical Center, Lund University, Post Box 124, S-221 00 Lund, Sweden) **Screening for plant lectins by latex agglutination tests.** *Phytochemistry*, v. 30(12): p. 4005-4009, 1991 (16 ref, Eng).

The latex agglutination test has been applied as a detection system for lectins, the method being especially useful in locations where the dependence on blood for hemagglutination tests could be minimised. The binding of various glycoproteins and sugars individually to the latex particles facilitated the agglutination with lectins having varying sugar specificities. The sensitivity of the latex agglutination tests was comparable with that of hemagglutination tests. Sugar binding specificity of the lectins could also be determined by inhibition of the agglutination in the presence of corresponding free sugars. The method proved to be useful in screening crude seed extracts for the presence of lectins.

9202-1327 Lin, H.G., Ge, Z.C., Li, Z.L. , Yu, R.Q.(Department of Chemistry and .Chemical Engineering, Human University, Changsha 410082, China) **Studies on surfactants used for thin layer chromatographic separation of flavones.** *Acta Pharmaceutica Sinica*, v. 26(6): p. 471-474, 1991 (5 ref, Chi, Eng).

Micellar thin layer chromatographic behaviours of rutin, quercetin and morin were studied. The methods of separation and identification of quercetin and rutin in samples of sophorae flos were established..

9202-1328 Marston, A., Hostettmann, K.(Institute of Pharmacognosy and Phytochemistry, School of Pharmacy, University of Lausanne, CH-1015 Lausanne, Switzerland) **Modern separation methods.** *Natural Product Reports*, v. 8(4): p. 391-413, 1991 (269 ref, Eng).

Several techniques involving separation of natural products from plants have been described. Modern separation methods described include, centrifugal TLC, over pressure layer chromatography, flash chromatography. Liquid chromatography, HPLC, Biochromatography, etc.

9202-1329 Meeku, C., Shibamoto, T.(Department of Environmental Toxicology, University of California, Davis, California 5616, USA) **Effect of glycine in the production of toxic volatile aldehydeds from heated corn oil.** *Journal of American Oil Chemists' Society*, v. 68(11): p. 884-885, 1991 (18 ref, Eng).

Fatty aldehydes generated from heated corn oil and from several corn oil/glycine mixtures were collected by a dynamic headspace sampling method and subsequently reacting with cysteamine to yield correspond thiazolidines. Toxic fatty aldehydes decreased dramatically when the amount of glycine in the heated corn oil was increased upto 5g per 100 g oil, suggesting that these compounds contribute to the toxicity of heated oils.

9202-1330 Moates, G.K., Reynolds, J.(AFRC Institute of Food Research, Norwich Laboratory Colney Lane, Norwich NR4 7UA, England) **Comparison of rose extracts produced by different extract techniques.** *Journal of Essential Oil Research*, v. 3(5): p. 289-294 , 1991 (9 ref, Eng).

Extraction of rose petals using the differing techniques of solvent extraction (hexane), steam distillation and high pressure CO2 were performed. Extract profiles are presented demonstrating the relative extraction efficencies

of the processes with respect to fragrant and non-fragrant regions. A product richer in relevant fragrance components is produced by CO2 extraction.

9202-1331 Rao, C., Liu, X., Zhang, P.L. , Chen, W.M., Fang, Q.C. (Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Application of high speed countercurrent chromatography for the isolation of natural products-preparative isolation of taxanediterpenoids and diterpene alkaloids.** *Acta Pharmaceutica Sinica*, v. 26(7): p. 510-514, 1991 (13 ref, Chi, Eng).

High speed countercurrent chromatography (HSCCC) based on the fundamental principle of liquid-liquid partition is a newly developed technique for isolation. It utilizes a particular combination of coil orientation and planetary motion to produce a unique hydrodynamic phenomenon in the unilateral phase distribution of two immiscible solvents in a coiled coulumn. In recent years HSCCC has gained increasing popularity in the isolation of bioactive natural products. Its application in the preparative separation of taxol, cephalomanine and baccatin-III from the alcoholic extract of *T.yunnanensis* has been reported.

9202-1332 Schmidt, Z., Pekic, B.* , Karuza-Stojakovic, L.(Faculty of Technology, University of Novi Sad, YU 21000 Novi Sad, Yugoslavia) **Examination of essential oil extracted from sage leaves (Salviae folium).** *Farmaceutski Vestnik*, v. 41(3-4): p. 223-231, 1990 (16 ref, Eng).

The extraction of sage (*Salvia officinalis*) with different concentrations of ethanol at 20, 40 and 60 degree C was examined as well as the inluence of drug milling on the composition, yield and extraction rate of essential oil. The digestion at 60 degree C with 94 percent m/m ethanol was found to be the best procedure. In these conditions, it is not necessary to mill the drug. Essential oil is obtained in 3-4 hours in high yield. The composition of essential oil in the extract is slightly different than the composition of oil obtained by direct hydrodistillation of sage.

9202-1333 Suto, K., Sagara, K., Mizutani, T.(Research Center, Taisho Pharmaceutical Co., Ltd., 1-403, Yoshino-cho, Omiya-shi, Saitama 330, Japan) **Application of supercritical fluid chromatography to determination of gingerols in Zingiberis Rhizoma.** *Shoyakugaku Zasshi*, v. 45(1): p. 29-34, 1991 (4 ref, Eng).

Determination of (6)-gingerol, (8)-gingerol and (10)-gingerol in Zingiberis Rhizoma by coupled supercritical fluid extraction (SFE)/supercritical fluid chromatography (SFC) is described. Zingiberis Rhizoma (ginger) was subjected to SFE with carbon dioxide. The extraction oils containing gingerols were trapped on a trimethylsilyl (TMS) silica gel column by reducing the pressure of carbon dioxide. The trapped oil was then analyzed on a silica gel column by SFC using carbon dioxide containing n-butanol as the mobile phase and UV adsorption monitoring at 280 nm.

9202-1334 Tschirch, C., Krans, L.J.*(Lehrstuhl fur Pharmakognosie, Bundesstrasse 43, 2000 Hamburg 13, Germany) **Laburnum alkaloid cytisin, fast thin layar identification.** *Deutsche Apotheker Zeitung*, v. 131(37): p. 1876-1878 , 1991 (12 ref, Ger).

Only title translated.

9202-1335 Widmer, W.W., Collins, R.P.(Florida Department of Citrus, Citrus Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850, USA) **Analysis of essential oils from selected cultivars of Pelargonium quercifolium by GC/MS.** *Journal of Essential Oil Research*, v. 3(5): p. 331-340 , 1991 (10 ref, Eng).

Essential oils from four scented geranium *all cultivars of P.quercifolium* were distilled annually and analyzed by GC/MS over a period of three years. The cultivars studied were: 'Giant Oak', 'Staghorn Oak', 'Sharptooth Oak' and 'Skeletons Unique'. More than 120 components were detected in each oil with partial or complete identifications made on 57 to 72 constituents per oil. Considerable quantitative variation in composition occurred in the oils over the three-year period. The major components in the oil of 'Giant Oak', 'Sharptooth Oak' and 'Staghorn Oak' were alpha-phellandrene (12.8-24.9 percent) and p-cymene (18.7-22.5 percent). The oils of 'Sharptooth Oak' and 'Shaghorn Oak' differed from the 'Giant Oak' by also containing substantial amounts of hexylbutyrate (4.5-10.7 percent) and trans-2-hexenylbutyrate (16.0-19.4 percent). The major components in the cultivar 'Skeletons Unique' were: alpha-guaiene (15.7 percent) and geranyl butyrate (19.4 percent).

9202-1336 Wu, P., Kuo, M.C., Zhang, K.R. , Hartman, T,G,, Rosen, R.T., Ho, C.T.*(Rutgers, State University of New Jersey, Cook College, Department of Food Science, PO Box 231, Brunswick, NJ 08903, USA) **Analysis of glycosidically bound 2,5-dimethyl-4-hydroxy-3(2H)-furanone in pineapple.** *Perfumer & Flavorist*, v. 15(1): p. 51-53, 1990 (Recd. 1992, 10 ref, Eng).

2,5-Dimethyl-4-hydroxy-3(2H)-furanone(DMHF) contents of the fresh Hawaiian and Costa Rican *Ananas comosus* juice have been found to be 2.34 and 1.59 mg/L respectively. After incubation of the pineapple juice samples with almond beta-glucosidase, the DMHF contents of the sample were raised to 6.04 and 4.59 mg/L for

Hawaiian and Costa Rican pineapple respectively. Procedure for the analysis of DMHF has been described.

9202-1337 Wu, Y.Z., Luo, X., Wang, X. , He, C.F.(Shenyang College of Pharmacy, Shenyang 110 015, China) **Quality assessment of the Chinese traditional medicine rhubarb by chemical pattern recognition.** *Acta Pharmaceutica Sinica*, v. 26(2): p. 132-138, 1991 (7 ref, Chi, Eng).

The PRIMA method was adopted to classify 29 samples of the Chinese traditional medicine rhubarb (*Rheum* spp.) with 16 samples as the training set and 13 samples as the test set. The recognition ability was 100 percent and the prediction ability was 92 percent on HPLC data, while both of them were 100 percent on UV data. The PRIMA method is superior to the SIMCA method and nonlinear mapping in its simplicity, rapidity and correctness.

9202-1338 Xu, L.X., Liu, A.R.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Determination of taxol in Taxus chinensis by HPLC method.** *Acta Pharmaceutica Sinica*, v. 26(7): p. 537-540, 1991 (1 ref, Chi, Eng).

A method for the determination of taxol in *T.chinensis* by HPLC method using betamethasone as internal standard has been described. The column employed was packed with 10 micro m silica gel YWG 80 (250x4mm), the eluting solvent consisting of CH2Cl2-MeOH (95:5) and the effluent was monitored at 228 nm. The coefficient of variation are less than 2 percent.

9202-1339 Xu, L.X., Zhang, Q., Liu, A.R.. **Determination of 4'-methoxy-puerarin in puerarin by reversed phase HPLC.** *Acta Pharmaceutica Sinica*, v. 26(6): p. 479, 1991 (Chi, Eng).

only title translated.

9202-1340 Xu, Y.M., Sakai, T., Tanaka, T. , Nonaka, G.*, Nishioka, I.(Faculty of Pharmaceutical Sciences, Kyushu University 62, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812, Japan) **Tannins and related compounds. CVI. Preparation of aminoalditol derivatives of hydrolyzable tannins having alpha- and beta-glucopyranose cores, and its application to the structure elucidation of new tannins, reginins A and B and flosin A, isolated from Lagerstroemia flos-reginae Retz..** *Chemical & Pharmaceutical Bulletin*, v. 39(3): p. 639-646 , 1991 (20 ref, Eng).

To avoid tautomerism in the hydrolyzable tannins which lack an acyl group at the glucose C-1 position, a new method for the protection of the C-1 atom has been developed. That is reaction of the tannins with p-anisidine in the presence of acetic acid, followed by sodium cyanoborohydride reduction, afforded, without notable hydrolysis of ester bonds, the aminoalditol derivatives (1a-7a) in 50-80 percent yields. The proton and carbon-13 nuclear magnetic resonance spectra of these derivatives exhibited much simpler signal patterns typical of an open-chain form of glucose, and almost all the signals could be assigned. Application of this method to the structure elucidation of the new tannins, flosin A and reginins A and B, isolated from the leaves of *L.flos-reginae*, established their structures including the orientation of the 4,6-positioned valoneoyl group. In addition, the structure of a new hydrolyzable tannin, lagerstroemin, which was concomitantly isolated from the above species, was elucidated.

9202-1341 Zeng, L., Zhang, R.Y., Lou, Z.C.(School of Pharmaceutical Sciences, Beijing Medical University, Beijing 100 083, China) **Separation and quantitative determination of three saponins in licorice root by high performance liquid chromatography.** *Acta Pharmaceutica Sinica*, v. 26(1): p. 53-58, 1990 (15 ref, Chi, Eng).

A new analytical method for the separation and simultaneous determination of three saponins in Licorice root by HPLC has been developed. The saponins, glycyrrhizic acid (S-I), uralsaponin B (S-II) and uralsaponin A(S-III) were separated and determined by use of the solvent system CH3CN-3 percent HOAc(H2O)(47:53) at 248 nm, and with gradient increasing flow rate, the operation can be completed in 20 min. The contents of three saponins in Chinese Licorice roots derived from four *Glycyrrhiza* viz., *G.uralensis*, *G.inflata*, *G.eurycarpa*, *G.glabra* species were determined by this method.

9202-1342 Zhang, X.Q., Liu, A.R., Xu, L.X.(Institute of Materia Medica, Chinese Academy of Medical Sciences, Beijing 100050, China) **Determination of ranunculin in Pulsatilla chinensis and synthetic ranunculin by reversed phase HPLC.** *Acta Pharmaceutica Sinica*, v. 25(12): p. 932-935 , 1990 (4 ref, Chi, Eng).

A method for the determination of ranunculin in *P.chinensis* and synthetic ranunculin by reversed phase HPLC using betamethasone as internal standard is described. The column employed was a 10 micro M Li-Chrosorb RP-18 (230x4 mm), the eluting solvent consisted of methanol-water (40:10, V/V) and the effluent was monitored at 225 nm. The advantages of this method are simple, rapid and accurate. The coefficients of variation are less than 1 percent.

Miscellaneous

9202-1343 Allured, S.E.(Allured Publishing Company, PO Box, Wheaton IL 60189-0318, USA) **Computer as the perfumer's helper.** *Perfumer & Flavorist*, v. 16(5): p. 27-34, 1991 (Eng).

Use of computer in perfumery has been discussed under the following headings: programming for perfumers, PERFORM by XICIS Corporation, INFORM Computer program, FORMPACK, operations of a perfumery program, materials database, automatic sample weighing, the Henkel System, the Yamamoto System, Dosilux- the weighing robot, Van Wyk Engineering, What is the future and odor descriptions. Addresses of companies offering programs and databases are also provided.

9202-1344 Anonis, D.P.(98-41-64th Road, Rego Park, New York, NY 11374, USA) **Broom (genet) in perfumery.** *Perfumer & Flavorist*, v. 16(5): p. 55-57, 1991 (14 ref, Eng).

Of several species of *Spartium*, known as broom, *S.junceum* is used in perfumery. Mode of production, type of oil, yield, chemical composition, synthetic compounds and application of natural genet flower oil have been discussed. Six formulas for the synthetic genet oil have been described.

9202-1345 Balakrishnan, K.V.(Synthite Industrial Chemicals, Kochi 682016, Kerala, India) **An insight into spice extractives.** *Indian Spices*, v. 28(2): p. 22-26, 1991 (Eng).

Types of spices, their quality control, economy, hygiene, stability, storage, packing and uses have been discussed.

9202-1346 Bhavsar, G.C., Chauhan, M.G. , Upadhyay, U.M.(Government College of Pharmacy, Lakhtar 382 775, Gujarat, India) **Evaluation of Indian Aloes.** *Indian Journal of Natural Products*, v. 6(2): p. 11-13 , 1991 (3 ref, Eng).

Barbaloin content of the aloeitic juice drained from the transversely cut base of the *A.vera* leaves ranged from 2.52.13.39 percent over a period of eight months. Market samples of Aloes had barbaloin ranging fromn zero to 5.765 percent.

9202-1347 Blackwell, R.(The Barn, Crickham, Wedmore, Somerset BS284JT, UK) **An insight into aromatic oils: Lavender and tea tree.** *British Journal of Phytotherapy*, v. 2(1): p. 25-30 , 1991 (8 ref, Eng).

An account of the history of clinical treatment of disease with essential oils has been presented. Two essential oils, viz., lavender (*Lavandula* species and tea tree (*Melaleuca alternifolia*) have been examined and details of their constituents, properties and indications are discussed.

9202-1348 Born, C.(Schmidstrasse 12, 7961, Bergatreute, Germany) **Autumn crocus (Colchicum autumnale) a beautiful poison.** *PTA Heute*, v. 5(9): p. 448-449, 1991 (Ger).

Constituents, pharmacological activities, medicinal uses, dose and bitter principles of *C.autumnale* have been briefly discussed.

9202-1349 Davis, T.A.(JBS Haldane Research Centre, Nagercoil 4, TN, India) **Nutmeg in Indonesia and its expanding uses.** *Indian Spices*, v. 28(2): p. 6-11, 1991 (Eng).

Cultivation aspects, botany, importance, processing and various uses of *Myristica fragrans* in Indonesia have been reported.

9202-1350 Evans, D.M.(Buddlehayes, South Leigh, Colyton, Devon EX 136 JH, UK) **The validity of the hallucinogenic plant experience and its relationship to the drug problem facing the West.** *British Journal of Phytotherapy*, v. 1(3/4): p. 54-57 , 1990 (4 ref, Eng).

The normal use of the drugs such as Cannabis, etc. in traditional societies occurs in the context of a stable relationship between the self, the community and the society's specific religious belief, their use heightens the spiritual and psychological life for both the individual and the community. However in less coherrent communities such as the industrialized world the use of these drugs often produces negative results as they are used outside a coherrent and integrated context.

9202-1351 Faruq, M.O., Haque, M.Z., Sayeed, M.A., Islam Sarder, M.A.(BCSIR Laboratories, Rajshahi, Bangladesh) **Chemical investigations on Bangladeshi turmeric Part II. Substantivity of curcumin and its derivative dyes on jute and wool fibres.** *Bangladesh Journal of Scientific and Industrial Research* , v. 25(1-4): p. 142-152, 1990 (15 ref, Eng).

Curcumin can dye both mordanted and unmordanted jute. Mordanted jute dyed with curcumin is less fugitive to various fastness tests than unmordanted jute. Wool can also be dyed with curcumin. Among the various derivatives of curcumin, chloro-curcumin, nitro-chloro-curcumin, amino-chloro-curcumin, diazotised amino-chloro-curcumin and acetylated curcumin were found to have dyeing properties on both mordanted and unmordanted jute and on wool fibres. The susbtantivity of these dyes on mordanted and unmordanted jute and on wool fibres were satisfactory.

9202-1352 Greinwald, R., Stobernack, H.P.(Ardeypharm GmpH, Loerfeldstrasse 20, D-5804, Germany) **Ammi visnaga (Khella).** *British Journal of Phytotherapy*, v. 1(3/4): p. 7-10 , 1990 (28 ref, Eng).

A.visnaga is recognized as an official plant in various pharmacopoeas of Central and East European States, East and South-East Asia, North Africa and South America. A brief review of its habit, constituents, therapeutic uses, toxicity and folk uses have been given.

9202-1353 Holdsworth, D.(Chemistry Department, Universiti Brunei Darussalam, Gadong 3186, Brunei) **Medicinal plants of the Central Province of Papua New Guinea. Part V. Coastal villages to the West and East of Port Moresby.** *International Journal of Pharmacognosy*, v. 29(3): p. 231-236, 1991 (25 ref, Eng).

An account of the medicinal plant collection (1982-89), from Yule Island (Kairuku) and Papa village on the north-west of Port Moresby to Hula village to the south-east of Papua New Guinea is given. The plants, 28 in number are arranged alphabetically by genera and species, their vernacular names are included. Medicinal uses of plants, chemical constituents, along with reference numbers are noted.

9202-1354 John, K.(Spices Board, India, PO Box 1909, Ernakulam, Kochi 682018, Kerala, India) **The gallery of spices and herbs-VI.** *Indian Spices*, v. 28(3): p. 29-34, 1991 (Eng).

Origin and distribution, description, flavour characteristics, Indian production and usage profiles of *Papaver somniferum, Rosemarinus officinalis, Crocus sativus, Salvia officinalis, Satureia montana* and *S.hortensis* have been reported.

9202-1355 John, K.(Spices Board, India, PO Box 1909, Ernakulam, Kochi 682018, Kerala, India) **The gallery of spices and herbs- V.** *Indian Spices*, v. 28(2): p. 30-34, 1991 (Eng).

Origin and distribution, description, flavour characteristics, Indian production and usage profiles of parsley *Petroselinum crispum, Piper nigrum*, Allspice *Pimenta dioica* and *Punica granatum* have been described.

9202-1356 Koch, A., Kraus, L.(Frohme-Apotheke, Frohmestrasse 14, 2000 Hamburg, Germany) (**Plant laxatives with anthranoids as active constituents**). *Deutsche Apothekar Zeitung*, v. 131(28): 1459-1466 , 1991 (24 ref, Ger).

Chemistry, pharmacokinetics, pharmacodynamics, toxicology, mutagenicity, analysis and quality control, and evaluation of plant laxatives viz., *Rhamnus frangula, R.purshianus, Aloe barbadensis, A. capensis, Cassia angustifolia, C.senna* and *Rheum palmatum* var *palmatum, R.officinale* have been reviewed.

9202-1357 Libbey, L.M.(Department of Food Science and Technology, Oregon State University, Corvallis, OR 97331, USA) **A paradox data base for GC/MS data on components of essential oils and other volatiles.** *Journal of Essential Oil Research*, v. 3(3): p. 193-194 , 1991 (3 ref, Eng).

An IBM-PC database has been developed for Kovats indices and major ion fragments in mass spectrometry for essential oil components and other volatiles.

9202-1358 Meenakshisundaram, V., Sundaresan, R. , Chandrasekharan, M.(Department of Agricultural Economics, TNAV, Coimbatore 641003, TN, India) **Marketing of betelvine/leaves in Tamil Nadu- An economic analysis.** *Agricultural Marketing*, v. 32(3): p. 14-15, 1989 (Eng).

Marketing surplus of betelvine leaves was estimated to be very high with 99.89 percent. Because of the perishable nature of the produce, the farmers are forced to dispose them immediately through intermediates not withstanding the Betelvine Growers' Association (B4A). Consequently, 35 percent of the consumers' money is cornered by the intermediaries. Moreover no scientific grading was followed. The study calls for an urgent need for streamlining the marketing channel and institutions like BGA may be financially strengthened. Other important issues required to be tackled are: research methods to extend to keeping quality of betel leaves and scientific system of grading.

9201-1359 Morlou, J.F.(Morton Collectanea, PO Box 8204, Coral Gables, Florida 33124, USA) **Horseradish tree, Moringa pterygosperma (Moringaceae)- a boon to arid lands.** *Economic Botany*, v. 45(3): p. 318-333, 1991 (126 ref, Eng).

An account on *M.pterygosperma* has been presented giving details of its vernacular names-description, geographic distribution, propagation, seasonal behaviour, pest and diseases, varieties, food used, medicinal uses, folk medicine practices and other economic uses. The tree is being introduced into drought-ridden lands. The long-range effects of ingesting tree parts as food or folk medicine need study. Attention should be given to horticultural aspects specially hybridisation.

9202-1360 Moscaino, G., Sadural, S., Fasano, M., Michalski, J. (Food Materials Corporation, 2711 West Irving Park Road, Chicago, IL 60618, USA) **Organoleptic**

characteristics of flavor materials. *Perfumer & Flavorist*, v. 15(1): p. 19-25, 1990 (Recd. 1992, Eng).

Source, FEMA No, CAS No, natural occurrence, odour characteristics, taste characteristics, and suggested applications of 32 flavour materials including ginger absolute strawberry naturome and vanilla total extractives have been described.

9202-1361 Mosciano, G., Fasano, M., Michalski, J., Sadural, S. (Bush Boake Allen, 7 Mercedes Drive, Montvale, NJ 07645, USA) **Organoleptic characteristics of flavor materials.** *Perfumer & Flavorist*, v. 16(5): p. 71-73, 1991 (Eng).

Source of origin, FEMA and CAS number, synonyms, natural or synthetic nature, odor characteristics, taste characteristics, and suggested applications of 22 flavour materials including balsam Peru oil and mountain maple bark, fluid extract have been described.

9202-1362 Muller, P.(Givandan-Roure, Uberlandstrasse, CH 6800 Dubendorf, Switzerland) **Creation perspectives of perfumery in the year 2000.** *Perfumer & Flavorist*, v. 16(5): p. 13-21, 1991 (10 ref, Eng).

A number of predictions have been made which highlight the perception-oriented dimensions of perfumes. Consideration of habituation effects, creation for dynamic perfume release, creation of perfumes by mixing odorant gas phases and efforts to understand synergism will be the areas attracting the attention to perfumers. Perfumers will address odor intensity in different terms and consider the scope of dose/effect curies. White hyacinth, *Angraecum bosseri*, *Cattleya dowiana*, geraniol and phenyl-ethyl alcohol have been cited as examples for future developments in the field.

9202-1363 Nakajima, M., Hirayama, R., Ozone, Y.(Kao Corporation, Tokyo Research Laboratories, 1-3, Brunka 2-chome, Sumida-ku, Tokyo 131, Japan) **Shampoo market in Southeast Asia.** *Perfumer & Flavorist*, v. 16(5): p. 37-49, 1991 (Eng).

Consumer's shampooing habits, current picture of the shampoo market in Southeast Asia and the fragrances used in the leading brands of shampoos have been discussed.

9202-1364 Nicholls, C.(2 Ashdene House, 11A Oak Dale Road, Tunbridge Wells, Kesit TN4 8DS, UK) **Psoriasis.** *British Journal of Phytotherapy*, v. 1(3/4): p. 19-25 , 1990 (24 ref, Eng).

Psoriasis is a common chronic dermatosis affecting mostly the white population in temperate regions. An account of pathogenesis and clinical features of the problem are given. Herbal and naturopathic approaches highlighting the Chinese medicine in this condition are presented.

9202-1365 Raghavan, B., Abraham, K.O., Shankaracharya, N.B., Shankaranarayana, M.L.(Central Food Technological Research Institute, Mysore 570013, Karnataka, India) **Cardamom- Studies on quality of volatile oil and product development.** *Indian Spices*, v. 28(3): p. 20-24, 1991 (17 ref, Eng).

Improvements in the quality of volatile oil and oleoresin of stable cardamom flavour in powder form and product development and application in different foods are presented.

9202-1366 Ramesh Kumar, S.C., Subramanyam, K.V.(Indian Instititute of Horticultural Research, Hessaraghatta, Bangalore 560089, Karnataka, India) **Economics of investment in jasmine flower cultivation in Madurai district of Tamil Nadu.** *South Indian Horticulture*, v. 39(3): p. 146-150, 1991 (3 ref, Eng).

Economic analysis of investment, costs and returns of jasmine flower plantation has been discussed. Cultivation of *Jasminum sambac* was found to be profitable with a net return of Rs. 15,380/ha/year, giving benefit-cost ratio of 1:6.

9202-1367 Sharma, M.P.(Botany Department, Faculty of Science, Hamdard University, Hamdard Nagar, New Delhi 110062, India) **Less known medicinal uses of plants from Mewat (District Gurgaon), Haryana, India.** *Economic Botany*, v. 45(3): p. 435-436, 1991 (7 ref, Eng).

During the course of systematic studies on the flora of Gurgaon 50 plants used by inhabitants of Mewat were identified for various therapeutic purposes. Eight of these plants are new, and are, *Cenchrus biflorus*, *Daucus carota*, *Ficus religiosa*, *Heliotropium strigosum*, *Leucas urticaefolius*, *Ocimum basilicum*, *Trianthema portulacastrum* and *Volutarella ramosa*.

9202-1368 Sonnenborn, U., Proppert, Y.(Pharma-Zentrale GmbH, Laerfeldstrasse 20, W-5804 Herdecke, Germany) **Ginseng (Panax ginseng C.A. Meyer).** *British Journal of Phytotherapy*, v. 2(1): p. 3-14 , 1991 (155 ref, Eng).

A summary of the present knowledge regarding the botany, chemistry, pharmacology, toxicology and clinical applications of *P.ginseng* has been presented. Also discussed are the reports concerning the side effects of ginseng preparations which have sporadically appeared in western countries.

9202-1369 Stainton, R.E.. **Verbena officinalis in perspective.** *British Journal of Phytotherapy*, v. 1(3/4): p. 43-46 , 1990 (7 ref, Eng).

V.officinalis has varied actions and has been used in different traditional systems as a tonic, sedative, vulnerary for wounds, for infertility, dropsy, astringent, useful in paralysis, amenorrhoea, swellings, suppurative for infections, blood purifier etc. An account of its botany, active constituents and pharmacology is given.

9202-1370 Suseelappan, M.S.(Department of Pharmacology, Government Ayurvedic College, Thripunithura, Ernakulam, Kerala, India) **Medicinal uses of pepper in Ayurveda.** *Indian Spices*, v. 28(3): p. 25-26, 1991 (Eng).

Medicinal uses of various preparations of *Piper nigrum* and *P.longum* have been discussed.

9202-1371 Svendsen, A.B.(Division of Pharmacognosy, State University of Leiden, The Netherlands) **Essential oil research and essential oil symposia 1969-1989.** *Perfumer & Flavorist*, v. 15(1): p. 1-12, 1990 (Recd. 1992, 12 ref, Eng).

Developments which have taken place since the Essential Oil Symposium started in 1969 have been reviewed under the following heads: the beginning, development of essential oil research, developments in chromatography, isolation procedures, identification of essential oil constituents, and future of essential oil research.

9202-1372 Tikku, S., Sindhu, R.S., Bhartiya, R.K.(Science Department, Regional College of Education, Ajmer 305004, Rajasthan, India) **The removal of Hg(II), Pb(II) and Cd(II) from water by Adina cordifolia plant substarte.** *Pollution Research*, v. 10(1): p. 21-24, 1991 (7 ref, Eng).

The removal of Pb(II), and Hg(II) from their solutions was made by using the substrate of *A.cordifolia* plant. Laboratory studies were conducted to evaluate and optimize the various variables such as metal ion concentrations, solution pH, contact time. The studies have shown that *A.cordifolia* plant substrate removes these metals appreciably at 2000 ppm concentration. The degree of removal increases in the order: Pb(II)greater than Hg(II) greater than Cd(II. pH range and contact time for maximum absorption are 5.0 to 7.5 and 2.5 hours respectively.

9202-1373 Verghese, J.(Synthite Industrial Chemicals Limited, Synthite Valley, Kolenchery 682 311, Kerala, India) **Cumin.** *Perfumer & Flavorist*, v. 16(5): p. 61-64, 1991 (42 ref, Eng).

Description, distribution, production, and uses of *Cuminum cyminum* have been discussed. Isolation of cumin essential oil and its chemistry have also been reviewed.

9202-1374 Verghese, J.(Synthite Industrial Chemicals Ltd., Synthite Valley, Kolenchery 682311, Kerala, India) **Rosemary- the unique leafy spice.** *Indian Spices*, v. 28(3): p. 2-7, 1991 (47 ref, Eng).

The review reports the distribution, chemical constituents and biological activities of *Rosmarinus officinalis*.

9202-1375 Verghese, J.(Synthicte Industrial Chemicals Ltd., Kolenchery 682311, Kerala, India) **Snapshots on Piper nigrum L. technology.** *Indian Spices*, v. 28(2): p. 12-16, 1991 (21 ref, Eng).

Methods of drying and thermal decontamination of *P.nigrum*, a description of new flavorings agents like green pepper and black pepper, wet spice, mildspice, green pepper oil have been discussed.

9202-1376 Zeylstra, H.(Bucksteep Manor, Bodle Street Green, Hailsham, East Sussex BN 274 RJ, UK) **The phytotherapeutic approach to rheumatoid arthritis.** *British Journal of Phytotherapy*, v. 2(1): p. 15-20 , 1991 (1 ref, Eng).

An account of aetiology, signs and symptoms, and treatment of rheumatoid arthritis is given. A number of plant drugs useful in the treatment have been discussed.

9202-1377 Zhao Qinghua(China Features, PO Box 522, Beijing, People's Republic of China) **China's perfumery industry: Current status.** *Perfumer & Flavorist*, v. 16(5): p. 51-52, 1991 (Eng).

Production of essential oils and aromatic chemicals in China during 1989 and 1990 has been briefly discussed. Production of 19 essential oils and 11 aromatic chemicals has been tabulated. China's major essential oils are peppermint oil, jasmin concrete, patchouli oil, labdanum concrete and vetiver oil.

New Publications

9202-1378 Ashurst, P.R.(Blackie, Glasgow.) **Food Flavourings(1990, xiv+310pp, 65.00 Pounds).** *Flavour and Fragrance Journal*, v. 6(4): p. 299, 1991 (Eng).

This book, 'intended to be a practical companion to the flavourist, the applications technologist and the technical salesperson', has ten informative chapters written by thirteen authors who are either employed by the major flavour houses or their customers, or are independent consultants. The Introduction describes the world flavour industry, its markets, products, emerging opportunities and the legislation under which it must operate. Essential oils, oleoresins, tinctures and extracts and fruit juices are the major raw materials of the food flavour industry. The

description of the isolation and processing of essential oils is followed by a discussion of the composition of 23 important essential oils. The chapter on synthetic ingredients restricts itself to nature-identical flavours classified into sixteen groups as in the flavour wheel. For each flavour note, typical examples are given with schemes outlining their natural formation and commercial syntheses. The remaining chapters deal with applications. This book will be of great use to anyone starting to work with food flavourings, almost certainly because of the commercial sensitivity of flavouring formulations.

9202-1379 Ayres, D.C., Loike, J.D.(Cambridge University Press. 40W, 20th St., New York, NY 10011) **Lignans: Chemcial, Biological and Clinical Properties (1990, English, xix+402 pp., $95.00.** *Economic Botany*, v. 45(3): p. 441-442, 1991 (Eng).

This book is the second in the series, (Chemistry & Pharmacology of Natural Products). This is the first book to cover the whole field of lignan chemsitry including the application and promise of lignans as pharmaceutical agents. The book contains eight chapters. The first of which clarifies several problems which arise out of naming and streochemistry of some lignans of particular mention are the biological and clinical properties of podophyllotoxins and other lignans and of etoposide and teniposide. The volume is provided with Botanical and General indexes, and has a Glossary for Lignans.

9202-1380 Kapoor, L.D.(CRC Press, C/o Wolfe Medical Publications Ltd., London, UK) **CRC Handbook of Ayurvedic Medicinal Plants (Eng, 1990, 416 pp., 156.00 Pounds).** *International Journal of Pharmacognosy*, v. 29(3): p. 240 , 1991 (Eng).

This volume on Ayurvedic medicine treats 251 species of plants arranged alphabetically according to botanical names. Some 66 descriptions are accompanied by line drawings. Each drug is described by its vernacular name, habitat, part used, morphological characterstics/pharmacological action, medicinal properties and uses, and doses. References to literature are cited throught the text (900 ref). Also included is an extensive index.

9202-1381 Martinez, M.(Libreria y Ediciones Botas, SA, Justo Sierra 52, 06020 Mexico, DF, Mexico) (**Medicinal Plants of Mexico). Sixth edition (1990, Spanish, 657pp., 75000 Mexican pesos).** *Economic Botany*, v. 45(3): p. 441, 1991 (Spa).

The sixth edition, with a prologue about the study of medicinal plants in Mexico, followed by a discussion of the contribution of Francisco Hernandez during the 16th century, is divided into four parts, in each of which the plant entries are arranged alphabetically by common names. The text is in Spanish, the book includes several line drawings and a few coloured plates. An alphabetical listing of 111 ailments and medicinal properties presents the plants commonly associated with them. The bibliography lists general references. The index has 883 scientific and 2571 common names.

9202-1382 Pelletier, W.S. (Springer-Verlag, New York) **Alkaloids: Chemical and Biological Perspectives. Vol.7(1991, xv+591pp, 188.00 D M Hardcover).** *Indian Journal of Chemistry*, v. 30B(12): p. 1156, (Eng).

This monograph series provides an extensive coverage of data on three different type of alkaloids: (a) homoerythrina and related alkaloids; (b) steroidal alkaloids; and (c) norditerpenoid alkaloids. In the three chapters presented, include, structural determination by various spectroscopic methods, structural correlations, synthesis, biosynthesis and pharmacology. The second chapter gives an extensive review of the carbon-13 NMR spectroscopic data of steroidal alkaloids. The third chapter describes proton and carbon-13 NMR shift assignments and physical constants of over 200 norditerpenoid alkaloids. This chapter also lists the occurrence of alkaloids in various plant species.

Patents

9202-1383 Alec, S., Walter, S.. **Nicotine containing lozenge, Pat. Specif (Aust.), AU, 581,412, (Cl. A61 K31/465), 1989, 11 PP.** (Eng).

A nicotine containing lozenge is obtained by mixing cocoa powder (720 gm) licorice powder (880 gm), acacia powder (400 gm) and tragacanth (10 gm). The formulation was blended with a nicotine solution in alcohol and moulded into lozenges tablets. If taken in mouth, the lozenges satisfy the craving for tobacco. PID, New Delhi.

9202-1384 Gaiduk, R.I., Litvinchuk, M.D. , Rudyi, R.V., Pinyazhko, O.R.(Lvov State Medical Institute, USSR) **Sesquiterpene lactone isolation from Senecio erraticus as choleretics, USSR SU 1,438,798, (Cl. A61 K35/78), 1988,.** (Rus, Eng).

Sesquiterpene lactones were isolated from the methanolic extracts of *S.erraticus* at a ratio of 1:20-1.23 raw material: extractant. The final product is obtained by distillation of methanol, followed by purification with petroleum-ether solvent. The product was further purified with chloroform. PID, New Delhi.

9202-1385 Harro, L.. **Process for the extraction of ginsenosides with liquid ammonia, Ger. offen.DE 3,731,391, (Cl.B01D4/02), 1989, 3 PP.** (Ger, Eng).

Extraction of ginsenosides from plant parts by making use of liquid ammonia under supercritical conditions at 100 bar and 104 degree C for 15 min has been described. A ginseng extract of 10 percent concentration and ginsenoside content of 1.5 percent has been obtained under the described conditions. Using H20 at 1 bar and 70 degree C and at an extraction time of 90 min. gave a yield of ginseng extract of 34 percent and accounting ginsenoside content of around 0.6 percent by weight. PID, New Delhi.

9202-1386 Hiroshi, H., Teruaki, H.(Kanei K K, Japan) **Isolation of polysaccharides from rice bran as hypoglycemics,Japan Kokkai Tokkyo Koho, JP, 01,66,203, (Cl. C08B 37/00), 1989, 9 PP.** (Jap, Eng).

Polysaccharides from rice bran viz oryza bran, A, B, C and D has been isolated from rice bran. The compounds exhibited hypoglycemic activity in mice. PID, New Delhi.

9202-1387 Joern, K.E.. **Sterlisation of plant materials such as pollen or seeds, Ger. Offen. DE. 3,541,706, (Cl. A61L2/20),.** (Ger, Eng).

Plant materials are sterlized with ozone. Under the following conditions acid pH, moisture content of 5-18 percent, temp. of 3-30 degree C; ozone concentration of 100-130 gm/m3 and time of exposure of atleast 1-7 hours.

9202-1388 Kunio, K., Toshio, M., Akira, A. , Akiko, I.(Taisho Pharmaceutical Company Limited; Chinese Medical Research Institute) **Isolation of triterpene compound as anti-cholesteremic agent, Japan Kokkai Tokyo Koho, JP Ol, 29,340, (Cl. C07 C62/38), 1989, 4PP.** (Jap, Eng).

Kadsuria heteroclita stalks yielded triterpene compound, on replacing stalks with ethanol and chromatographed to get 70 mg (24-Z) of the product. The product exhibited inhibition of cholesterol biosynthesis. PID, New Delhi.

9202-1389 Kunio, K., Akira, K.(Chinese Academy of Medical Sciences and Taisho Pharmaceutical Company Limited) **(24Z)-3,4-Secolanosta-4(30),8,24-triene-3,26-dioc acid from Kadsura heteroclita as anti cholesterolemic, Japan Kokai Tokkyo Koho, JP 01,31,744, (Cl. C07C57/26), 1989, 4 PP.** (Jap, Eng).

The title compound has been isolated from the stems of *K. heteroclita* by making use of ethanol (12 litres once; 6 litres twice). Combined extracted is concentrated and dissolved in ethanol, Insoluble portion was removed from ethanol and taken in petroleum-ether in Sokhlet apparatus. The final product is obtained upto 40 mg yield. Addition of the little compound at 5 micro g/ml concentration inhibited cholesterol biosynthesis upto 21.6 percent. PID, New Delhi.

9202-1390 Marcel, C.. **Laxative powders containing isphagul and microencapsulated paraffin oil, Fr. Demande FR 2,616,329, (Cl.A61 K35/78), 1988, 7 PP.** (Fre, Eng).

Laxative pharmaceuticals contain a vegetable origin laxative, example, extracts of isphagul in combination with lubricating laxative in powder form along with excipients form good laxative agent. Isphagul powder was obtained by grianding *Plantago ovata* seeds and it is mixed with paraffin oil and homogenised. The product was mixed with 0.1 gm of saccharinate and orange essence. The mixture so obtained was filled into packages containing isphagul (husk) and paraffin oil in equal parts. Microencapsulated paraffin oil was prepared, to give a flowable powder, followed by mixing with 10 percent lactose and 1 percent talc. PID, New Delhi.

9202-1391 Masao, M., Naomasa, M., Kenjiro, I.(Reed chemical K.K., Japan) **Polysaccharides from tea for manufacture of hypoglycemics, antidiabetics, and health foods Japan Kokkai Tokkyo Koho JP, 63,308,001 (Cl. C08B37/00) 1988, 8pp..** (Jap, Eng).

Pharmaceuticals and health foods are prepared which contain polysaccharides as hypoglycemics, and antidiabetics. A procedure has been described for the isolation of polysaccharides from tea, containing L-arabinose, D-ribose and D-glucose as the structural components. Water diethyl ether and butanol has been successfully used as extracting solvents for the isolation of polysaccharides. PID, New Delhi.

9202-1392 Naoki, Y., Hideki, N., Kazuyoushi, O.Y., Tsutomu, T., Satoshi, M.(Asahi Chemical Industry Company Limited, Japan) **Isolation of soybean saponins for treatment of AIDS, Japan Kokkai Tokkyo Koho, JP, 01,100,126, (Cl. A61 K31/70), 1989, 10 PP.** (Jap, Eng).

AIDS- prophylactic and therapeutic compositions contain saponins as active ingredients, which were isolated from soybeans. After HTLV-1 MT-cells (3x105/ml) was cultivated with HTLV-IIIb {as human immuno deficiency virus (HIV)} in the presence of the above saponin mixture 0.5 mg/ml for 6 days, there were 1.48x106 MT-4 cells/ml, 1.56x106 cells/ml for treatment with AZT, and 1.48x106 cells/ml for cultivation without HIV.

9202-1393 Roger, G.H.. **Extraction of steviosides from Stevia rebaudiana, Eur. Pat. Appl. EP 302,948, (Cl. C07 H15/256), 1989, 5PP.** (Eng).

Steviosides are extracted from *S.rebaudiana* with water at 65 degree C followed by filtration and subjected to Ca(OH)2 treatment to precipitate impurities. Solution from filtration is subjected to ion-exchange chromatography on

strong acid resin. Further, ion exchange chromatography on weak-base resin yield 75 percent steviosides.

9202-1394 Theodore, C.. **Treatment of anemia associated with rheumatoid arthritis by increasing blood thyroxine levels, especially using Zanthoxylum stimulans extract, U.S US 4,767,626, (Cl. 424-195.1; A61K35/78), Aug 1988, 3 PP.** (Eng).

Root and stem bark, leaves and berries of *Zanthoxylum simulans* were subjected to milling and the product (150 gm) was extracted with methanol (2 Litres). Dark crystalline product so obtained found to contain chelerythrine and minor fractions of dihydrochelerythrine, oxychelerythrine, N-acetylanonaine, skimmianine, fagarine, sitosterol, sesamin and 8-methoxy-N-methylflindersine. The composition is fat soluble alkaloid extracts from the roots of *Z.simulans* The product is helpful in alleviating the anaemia associated with viral and bacterial infection in patients with rheumatoid arthritis. An antiinflammatory agent esp. 2 percent ibuprofen was added if necessary, to treat the combined symptom of anaemia and joint inflammation. The product increases the thyroxine level in blood. PID, New Delhi.

9202-1395 Yasuaki, M., Osamu, K.Y., Kazuhiro, K.*, Masanao, W., Etsuo, O., Kaname, T., Manki, K., Ichiro, Y., Yoshiaki, S.(Zeria Pharmaceutical Company Limited, Japan) **Anti ulcer agents containing terpenes, Japan Kokkai Tokkyo Koho, JP 01,66,115 , (Cl. A61 K31/11), 1989, 6 PP.** (Jap, Eng).

Anti ulcer agents contains terpenes (R1=H, OH; R2= unsubstituted terpenoid residue, given structural formula) as active ingredients. Pulverized *Iris germanica* when extracted with methanol for 3 hrs. followed by treatment with water, ether and chromatography, yielded terpenes derivatives. When R1=H(given structural formula), 1.3 gm; (in II) R1=H, 0.3 gm; (in III). R1=OH (in II) 0.6 gm, R1=OH (in III) 0.5 gm and 0.4 gm (in IV). R1=H (in II) at 10 mg/kg P.O. inhibited 95.7 percent indomethacin-induced gastric ulcer in rats. PID, New Delhi.

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